

MEDICAL JOURNAL OF AUSTRALIA

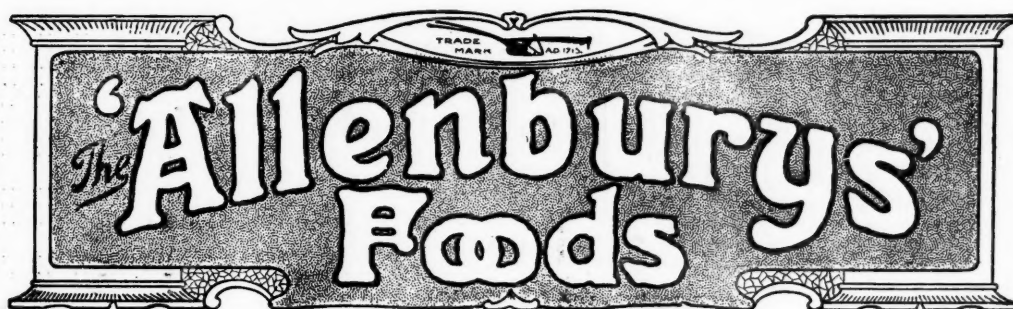
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VOL. I.—3RD YEAR—No. 5.

SYDNEY: SATURDAY, JANUARY 29, 1916.

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(a) The strength usually given to a young infant.

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Refer to Note issued by Dr. Robert Hutchison to face Page 470 of his book, "Food and the Principles of Dietetics," Third Edition, Revised and Enlarged, Second Impression, 1913.

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THE MEDICAL JOURNAL OF AUSTRALIA.

VOL. I.—3RD YEAR.

SYDNEY: JANUARY 29, 1916.

No. 5.

MALARIA CONTRACTED IN NEW GUINEA BY MEMBERS OF THE EXPEDITIONARY FORCE AND ITS TREATMENT.

By A. Breinl, M.D., and H. Priestley, M.D., Ch.M. (Syd.),
From The Australian Institute of Tropical Medicine, Townsville.

During the military operations in New Guinea and other islands in the Pacific, a number of the members of the Australian Forces contracted malaria. All of them underwent treatment in New Guinea, and many, in whom the fever recurred after their return to Australia, were admitted to various hospitals. A number of men, however, who, in spite of the administration of comparatively large doses of quinine, still had recurrences, were sent to the tropical ward of the Townsville Hospital for observation and treatment.

The majority of the men were in the prime of life, and their general health did not seem to have become much affected; in a small number, however, the clinical features of malarial cachexia were marked.

The cases, 30 in number, might, according to the state of infection, be divided into three groups:—

- I. Those in whose blood malarial parasites were found whilst under observation, either during an attack or during the afebrile interval (13 men).
- II. Those who showed clinical symptoms of latent malarial infection, such as enlarged spleen, and large mononuclear leucocytosis, but in whose blood even the most thorough microscopical examination failed to detect parasites (8 men).
- III. Those with a previous history of repeated attacks of intermittent fever, but at the time, without clinical or microscopical evidence of active malarial infection. All the men of the third group had had malarial attacks within a few weeks of their arrival in Townsville, and several still showed slight evening rises of temperature, complaining at the same time of malaise (9 men).

According to their clinical histories all the patients suffered from their first attack of fever at about the same time. The expeditionary forces left Australia at the beginning of August, 1914, and the greater number had their first symptoms of ague in December, or at the beginning of January. The first attack was usually severe, unconsciousness being not uncommonly observed. The subsequent attacks occurred, at first at regular intervals and about the same time of the day. Later, however, under the influence of quinine, the afebrile intervals became irregular and prolonged, and in every respect the histories were those of typical malarial fever modified by the effects of quinine administration.

After their return from New Guinea to Australia the majority of the men suffered from recurrences

of varying severity at irregular intervals. Some of them were admitted repeatedly to hospitals, and, under the influence of quinine and rest, the fever became quiescent. After their discharge, however, in spite of their professed continuation of treatment, the fever recurred again and again, with the result that majority of them were unable to follow regular employment. The relapses were seemingly not of particular severity, and the patients responded to quinine administration.

After their arrival in Townsville 8 men out of the 30 had typical relapses with numerous parasites in their blood. Blood examinations were made on every case before treatment was commenced. It was found that the hæmoglobin content and the number of red blood corpuscles were lowered in 11 of the cases; in 5 of them there was a slight anæmia only; whereas in 6 cases the figures for both pointed to a well-marked anæmia. These results were rather unexpected, since the duration of the disease and the frequent relapses led one to anticipate a more pronounced anæmia.

The differential counts of two-thirds of the men showed a pronounced mononuclear leucocytosis, but the blood count was quite normal in the other third.

The six patients with low blood counts presented the typical appearance of chronic malaria. Their complexion was of an earthy, greasy hue, the scleræ were icteric, the pulse and respiration rates increased, and the least bodily exertion affected the pulse and respiration.

The blood examination for the presence of parasites proved somewhat disappointing, but the results were not unexpected taking the general experience in this respect into consideration. Malarial parasites were found in 13 out of the 30 cases, after careful examination of from 1 to 3 films. The parasites of simple tertian malarial (*Plasmodium vivax*) were found in 11 cases, 1 case showed a single crescent (*Plasmodium falciparum*) in three films; and one case harboured the parasites of quartan fever (*Plasmodium malariae*).

Generally speaking, the microscopical finding of malarial parasites in the blood of fever cases when they are present in small numbers only, is difficult, and requires practice, experience, and patience, even when the films are well prepared and stained.

There are, according to Deaderick,¹ several factors which influence the result of the examination for parasites. The most important of these are:—

- (a) The previous administration of quinine.
- (b) The stage of development of the organism.
- (c) The stage of the disease.
- (d) The type of infection.

(a) The previous administration of quinine even in small quantities renders it almost useless to examine the blood with the expectation of finding parasites. Even when the quantity of the drug is insufficient to have any effect on the symptoms, it will or

dinarily cause a disappearance of the parasites from the peripheral circulation. The half poisoned parasites which persist in some instances are frequently unrecognizable with reference to type.

(b) All the phases of the quartan parasite are represented from the youngest form to the sporulating body, throughout the superficial and deep circulation in almost even distribution. Hence when dealing with this type it makes little difference at what period the blood is examined. But with the æstivo-autumnal organism it is only the early stages, the small rings, that are observed with any degree of frequency in the peripheral blood, and if the examination be made when the parasite has reached a later stage of development, it will probably be missed. Instead of resembling the quartan parasite in habit of distribution it seems to imitate its more distant relative, the Leishman-Donovan parasite. Later phases of the simple tertian hæmatozoon are less commonly found in examinations of the peripheral blood than are those of the quartan, but are much more frequently observed than those of the æstivo-autumnal. Sporulating bodies of the quartan type are not uncommon in the cutaneous blood, while those of the tertian are much less common, and those of æstivo-autumnal are extremely uncommon.

The frequency with which crescents are detected varies within the broadest confines. In the experience of some they are rare, whilst other observers note them frequently in æstivo-autumnal infections. Tertian gametes are not rarely observed in the blood of the superficial circulation, while quartan gametes are seldom found.

(c) In acute untreated malaria the parasite can be detected at some stage of its growth in almost 100% of cases. If not found at the first examination, as frequently occurs, subsequent searches are usually successful. On the contrary, in chronic malaria the parasites are far from constant during the stage of latency, and prolonged search may fail to reveal them during the relapse. Parasites are often absent from the peripheral blood of malarial cachectics.

(d) The behaviour of the different kinds of parasites in their different stages has been referred to. The quartan parasite is usually found on first examination; the æstivo-autumnal is infrequently found, on account of its habit of resorting to the deep circulation when approaching maturity. It is very unfortunate for rapid diagnosis that the æstivo-autumnal parasites are less readily detected than those of the benign infections, but fortunately they are easily found in the majority of cases in pernicious cases of æstivo-autumnal infection.

When the parasites cannot be found the definite diagnosis of malaria is difficult. The history cannot be entirely depended on, since the term "malaria" in the tropics is frequently applied to any intermittent fever. As clinical symptoms, such as enlargement of the spleen and liver, may be due to causes other than malaria, the result of a blood examination is the only determining factor in the diagnosis. Malaria almost invariably gives rise to a considerable increase of the large mononuclear leu-

cocytes which, if exceeding 20%, is hardly ever due to any other cause. In addition the finding of pigment granules in the phagocytes of the peripheral blood is pathognomonic of malaria; but the detection of a small amount of pigment is exceedingly difficult in stained specimens, and can only be made in fresh cover slips preparations with certainty, and then only after a prolonged and tiring search.

Effect of Quinine Salts on the Parasites in Their Developmental Stages.

It is a well-known fact that quinine salts do not influence the different types of malarial parasites, or even the same type of parasites in their different developmental stages, to the same extent.

The parasites of malaria undergo a definite life cycle in the human host, partly in the blood and partly in the organs, resulting in the formation of asexual and sexual forms; the former are called schizonts, and the latter gametocytes. The gametocytes have accomplished their cycle in the human host, and undergo further development only after having been taken up with the blood by the intermediary host, the mosquito. The asexual forms continue to develop in the blood. After each attack a great number of the schizonts are destroyed, probably as the result of the formation of parasitocidal substances in the blood. These asexual forms, especially the young schizonts, are most readily influenced by drugs; the sexual forms on the other hand are resistant to treatment.

The different species of parasites show a varying degree of resistance to quinine. *Plasmodium vivax* is more easily destroyed than *Plasmodium malariae* and *Plasmodium falciparum* shows the greatest degree of resistance.

The relative proportion of sexual and asexual forms varies according to the stage of the infection. In the earlier stages schizonts are numerous, and gametocytes are rare; as the infection progresses the number of gametocytes increases. The relative increase of the gametocytes explains the greater difficulty of treating late than early cases of malaria.

Malarial Immunity and Relapses.

Clinical and microscopical observations on malarial patients show that even without treatment a great number of parasites are destroyed; otherwise the organism would, after a few attacks, be overwhelmed by the parasitic invasion. Moreover, in untreated malaria the attacks become more irregular and less acute with lapse of time, and spontaneous cure may result under special conditions.

It is well-known that while the majority of children of a native community living in an endemic area have malarial parasites in their peripheral blood, the greater number of adults do not harbour the parasite, nor manifest any of the clinical symptoms of chronic malaria. It must therefore be assumed that malarial infection has given rise to an active acquired immunity, somewhat akin to that developed after certain bacterial invasions.

Other protozoic infections, as for example relapsing fever in man, and piroplasmosis in cattle, are followed by an active immunity which seems to be

come more readily established in young than in adult individuals.

In malaria, as in other protozoic diseases, the immunity becomes established only after a long interval.

In the early stages of the infection, when the production of antibodies is but slight and transient, generation after generation of the parasite is formed without any marked interference on the part of the host, and the attacks occur at regular intervals; later when antibodies are present in greater amounts, the development of the parasite is hampered; in consequence the attacks recur at irregular intervals, which may become more prolonged and result finally in an apparent spontaneous cure.

This active acquired immunity is specific to that type of parasite which causes the original infection. An adult native who has grown up in an endemic malarial area hardly ever shows any signs of infection, but when he leaves his village for another endemic area he may as readily fall a victim to this parasite as any non-immune newcomer.

The Treatment of Malaria.

All efforts to discover a drug which will kill the malarial parasites in the same effective manner as quinine, without the unpleasant concomitants, have failed, and quinine and its derivatives are still the only effective drugs. The various quinine salts vary in their curative action. The more soluble the salts administered the more readily are they absorbed and the more quickly are the parasites destroyed.

The following table gives the relative solubility of the most generally used quinine salts:—

Table I.

Quinine Salt.	Soluble in Cold Water.	Percentage of the Base.
Bi-hydrochloride ..	1:1 ..	81.6%
Bisulphate ..	1:11 ..	59.1%
Hydrochloride ..	1:40 ..	81.7%
Hydrobromide ..	1:40 ..	76.6%
Sulphate ..	1:800 ..	73.5%
Salicylate	sparingly soluble..	68.8%

Quinine may be administered either orally, intramuscularly, intravenously, or by rectum. The oral administration is the most generally used method, and properly applied is efficient in the majority of cases. When, however, parasites persist in the peripheral blood in numbers after the administration of large doses of quinine by mouth, the intramuscular method should be resorted to. This method, however, may be followed by deep-seated abscesses, even after the most rigid aseptic precautions have been adopted. It is necessary to inject deeply, and to select carefully the site of injection; the buttock, the deltoid muscle, and the deep muscles of the back should be chosen, and only the most soluble salts used. The solution injected should be well diluted, and several injections given at the same time into different parts of the body.

Intravenous injections of large doses, 15-25 grains in 8 to 20 ounces of saline solution, are only given in fulminant cases, in which the number of parasites is large, and the condition of the patient low. By the use of this method the destruction of the parasites is more rapid than after any other mode of administration.

Rectal administration, although recommended by various authors, does not seem to be rational, for quinine is only slowly and imperfectly absorbed by the mucous membrane of the rectum, and much larger doses must be given. These large doses, however, cause irritation of the mucous membrane of the rectum; in consequence the enema is not retained long enough to allow of the absorption of a sufficient quantity of the drug. Moreover, the pain and tenesmus resulting from the irritation restrict the use of this method to emergencies only, where intramuscular injections are impossible for practical reasons, and where frequent vomiting prevents the administration by mouth, and especially in children. Quinine salts should always be prescribed in solution, never in pill or tabloid form, unless freshness of the preparation can be guaranteed. On keeping they become hard and dry, and pass through the intestinal canal intact, and appear in the faeces.

Within the past few years opinions concerning the amount of quinine necessary for curative treatment have undergone a marked change. In former times comparatively small doses were recommended, not more than 15 grains daily in fractional doses; lately observers with large experience have advised the use of larger doses, and have given as much as 50 grains daily for several days. Quinine was previously given by most workers only during the febrile period, and at times kept up for a few days after the temperature had become normal. At the present day, quinine is usually administered over a longer period, at least three months.

The vigour of the treatment should depend on the species of malarial parasite causing the infection. Simple tertian is in most instances readily amenable to treatment. The quartan parasites are slightly more resistant, and malignant tertian requires the most energetic treatment to effect a permanent cure.

The parasites of the majority of the New Guinea patients—mostly simply tertian—differed from those of other localities in being more resistant to quinine. This observation only confirms our previous experience in this respect. Cases of malaria contracted in New Guinea after having been treated with 15 grains of quinine daily in the acute stage, and 15 grains twice weekly for several weeks, relapsed shortly after discontinuance of treatment. One sailor who had taken 30 grains daily for two weeks, and 20 grains every other day for four weeks, had an attack two weeks after leaving the hospital, and discontinuing taking quinine.* As a result of this it was decided to adopt in our cases a more vigorous treatment, such as generally used for malignant tertian infection.

The routine treatment consisted in the administration of 30 grains of quinine bihydrochloride or quinine bisulphate daily in three doses for three to four weeks, following up by 30 grains every other day for two weeks, and 20 grains every other day for two weeks, and then 20 grains twice weekly for at least another two months. Thirty grains of quinine are given daily for about a month, since

* Another New Guinea patient, who took 30 grains of quinine daily for three weeks and ten grains weekly afterwards, showed eleven weeks later numerous benign tertian gametes in the blood.

three weeks is usually considered the life span of a gamete.

This treatment seems rather severe and prolonged, but malaria, like all other protozoic diseases, such as syphilis, sleeping sickness, etc., is an exceedingly chronic infection, and requires prolonged treatment. A *therapia magna sterilisans* in Ehrlich's sense is, according to all experienced observers, impossible in protozoic diseases, and no drug can be given in a sufficiently large dose to destroy all the parasites without injuring the host. The parasitocidal drug must be given in smaller doses over prolonged periods, in order to attack and destroy the invaders, generation after generation, after having made the conditions unfavourable for propagation.

Figures collected by Nathan Barlow,² who employed a similar treatment to that outlined above, show the necessity for prolonged treatment in order to prevent relapses:—

Duration of Treatment.	No. of Patients Treated.	Relapses.
Less than one month	116 ..	116 = 100 %
One month	246 ..	91 = 37 %
Three months	218	—

Under ordinary conditions it would be unnecessary to keep malarial patients, in spite of the prolonged treatment, in the hospital for longer than two weeks. In the present instance, however, it seemed advisable to keep the patients under observation for two months, in order to ensure success in the treatment; it was a foregone conclusion that many of the patients would have discontinued treatment the day they left the hospital, and recurrences would have been almost certain.

General Remarks.

No rule as to the general treatment of malaria can be laid down, since every case has to be treated individually, taking into consideration the duration, type and severity of the infection, and the personal idiosyncrasies. Rest in bed is only necessary for about one week, as the patients acquire a tolerance to large doses of quinine quickly. After two weeks it would even seem advantageous to encourage moderate exercise.

As regards diet we never keep our patients on a low diet after the fever has abated. This, as a rule, takes place after two to three days. We allow a fairly liberal diet as soon as practicable. Abstinence from meat in malarial treatment is unnecessary; the drug is even much better borne after plentiful meals than otherwise. Naturally when the fever is present the patient neither desires nor requires solid food.

Alcohol in any shape or form is contraindicated, except in those instances where a heart stimulant is needed. It seems that under the influence of quinine the metabolism becomes altered, so that even relatively small quantities of alcohol are harmful.

The treatment of an acute attack should be guided by the microscopical findings, and should be so regulated that time is allowed for the reabsorption of quinine into the circulation before sporulation takes place. As this stage corresponds to the maximum rise of temperature, and a soluble quinine salt is absorbed in about 2 to 4 hours, the first dose should

be administered about three hours before the *fastigium* is expected. Thus the first attack is cut short, and in an average case not more than one subsequent attack should occur.

Large doses of quinine are, with few exceptions, well tolerated, provided that certain precautions are taken. The bowels must be kept well open, whilst large doses of quinine are being taken. As a routine treatment we prescribe one to two drachms of magnesium sulphate, or, better still, original Carlsbad salts at 6 a.m., in half a pint of hot water, so as to ensure one or two loose motions per day.

Against the toxic symptoms, such as giddiness, *tinnitus aurium*, and deafness, potassium bromide in 5 grain doses is given. Should toxic symptoms persist, an additional dose of 10 grains of potassium bromide, with two minims of tincture of ergot, is usually effective. Tremors due to quinine are common, but abate soon after treatment is discontinued.

It is imperative to examine every malarial patient carefully, and attend to any intercurrent ailment; chronic malaria lessens the resisting power, and any intercurrent infection may be of serious consequence. For instance, several of the New Guinea malarial cases were suffering from *pyorrhoea alveolaris* in a severe form. The discharge, on microscopical examination, contained numerous bacilli and spirochaetes, but no amoebae. In these cases the general health did not improve after the parasites had disappeared until the pyorrhoea was well under control, after injections of a 10% solution of hydrogen peroxide between the roots of the teeth and the gums twice daily, by means of a blunted needle and syringe.

It is a general experience that in nearly every case of protozoan infection a combined treatment by means of two different drugs, each of which acts as a parasiticide, is of decided advantage. The use of arsenic and mercury in syphilis, of arsenic and antimony in sleeping sickness may be cited. Arsenic influences malarial parasites to some extent, but it does not effect a complete cure. The organic arsenic salts are easily administered, and act at the same time as stimulants to the hæmopoietic organs.

Taking this aspect into consideration, it has been our practice for some time to administer para aminophenyl arsonate hypodermically; the doses given did not approach the toxic limit, but contained a much greater quantity of arsenic than could ever be administered in inorganic form by mouth. As a routine treatment, 3 grains of soamin dissolved in 30 minims of sterile normal saline solution are injected under the skin after the solution had been warmed to about 110° F., since in our previous experience, a cold 10% solution of soamin caused a considerable amount of pain and swelling at the site of injection, whereas a hot 10% solution did not give rise to any local discomfort.

Three grains of soamin are administered on four successive days, and the course repeated three times at weekly intervals on account of the cumulative action of arsenic.

In several cases of malarial fever a combined treatment is therefore recommended, the opinion be-

ing based on general experiences in other protozoan diseases, especially trypanosomiasis. It is well known now that trypanosomes may become resistant to arsenic in certain forms, especially if, in mild infections, treatment with insufficient doses has been continued over prolonged periods. In these rare cases a dose of the arsenical compound toxic to the animal does not destroy the parasites in the peripheral circulation, but antimony salts in these cases show the full therapeutic effect upon the parasites.

Whatever theoretical explanation may be brought forward, the fact has been well established that malarial parasites exhibit a similar behaviour in respect to quinine, for it has been proved by repeated observations that in certain cases after a prolonged and insufficient treatment even large doses of quinine do not destroy the parasites in the peripheral circulation.

The complicated life history of the malarial parasite, its adaptability to the changed conditions brought about by the reaction of the host against the parasitic invasion on the one hand, and insufficient quinine administration on the other hand, make it perfectly clear that treatment of malaria must be adapted to the individual, to the type of his infection, its severity, and to his susceptibility to quinine. A cure can only be accomplished by the discrete administration of large doses of quinine over a prolonged period, and may be facilitated by the use of organic arsenical preparations.

¹ 1909: Denderick; A Practical Study of Malaria. Philadelphia.

² 1915: Barlow; Clinical Reports of the Antimalarial Campaign at Guyamel. *Amer. Journ. of Trop. Dis. and Prevent. Med.*, Vol. II., No. 9.

THE TRANSPORT OF SICK AND WOUNDED ON ORDINARY TROOPSHIPS.

By Archie Aspinall, M.B., Ch.M. (Sydney),

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Owing to the exigencies of the service, in spite of the excellent hospital ships provided, sick and wounded may have to be conveyed in an emergency from the "front" to the intermediate base, or the base on ordinary troopships, which have just unloaded troops, and are not in any way prepared for the reception of wounded soldiers.

During the first few weeks of the operations at Gallipoli it was not unusual to receive orders to proceed with a small Army Medical Corps detail to a troopship, and to be prepared to receive a large number of wounded within a few hours. Indeed it was fortunate if the wounded were not already on board.

On arrival at the ship mentioned she may be found in a very unsatisfactory condition, and something must be done at once. Lieut.-Colonel Newmarch, Major Poate, and I found by experience that the following system worked well in spite of the great difficulties to be overcome:—

The Senior Medical Officer, on arrival on the ship, should make a rapid inspection by himself, if possible, in order to get a general idea of what accom-

modation is available, and the best way of utilizing it. Next he should ask the Captain of the ship if he or chief officer would make a complete tour of inspection of the whole ship with him at once, accompanied by the chief engineer, purser, and carpenter, if possible. By this means any requests made to the captain could be passed on directly to the head of the department concerned. Particular care should be paid to the working of the electric light and ventilating fans, water closets, bathrooms, kitchens and various sinks. It is essential that stretchers could be carried easily through the doorways between different troop decks. A site for an operating theatre should be selected, and the most convenient place usually being situated amidships, near a galley, so that a constant supply of hot water might be available. One of the electric light clusters used when coaling on ships makes an excellent light for the operating room. A site for a morgue should be decided on, also a place for infectious cases needing isolation, and a pack store for the patient's kits, if they possess any.

At the same time it should be settled exactly where and how the wounded could be taken on board, e.g., by an ordinary gangway, or through opening one of the water-tight doors, by placing a plank across on to the vessel bringing the wounded, which is frequently a trawler. The arrangements for taking on "stretcher" cases should next be looked into to ensure smooth working of the winch and in order to have the derrick in position when they arrive; at the same time the carpenter could be instructed how to make a wooden cot in which the stretcher could be placed and hauled on board by the steam winch. It is important for this cot to be wider and longer than the regulation stretcher, and properly balanced when slung. It could be used also for "sitting up" patients, who are unable to walk. Two or three cases of this kind could be brought up at one time by this means. Next enquiry must be made from the purser as to the quantity, quality and variety of foodstuffs on board, and also as to the number of mattresses, pillows, blankets, etc., available, and the number of stewards able to assist in serving out the food, washing up, etc. When the inspection has been finished, and it has been decided how many patients can be accommodated on the various decks, the orderlies are set to work to clean ship, assisted by the crew as far as possible. The operating room orderly is told to get the place set aside for operating in scrubbed and thoroughly clean, and closed in by canvas awnings, or whatever material is available. The fixed wooden mess tables make very good operation tables. They also make good substitutes for cots for bad cases, which can thus be kept off the floor. An exception must be made in the case of head cases, which are liable to fall off. It is of course understood that we are dealing with an ordinary troopship, on board which but few A.M.C. nursing orderlies are available and no nursing sisters. Abdominal, spine and fractured lower limb cases are much better on mess tables than on the floor, being much easier to get at and attend to there.

Next the various decks are numbered, and blankets, with mattresses if available, are placed in the

position to be occupied by each patient, together with a lifebuoy. The orderlies for each ward are now told off, and final instructions given to them.

As soon as the patients have rested, the clerks are set to work to get the particulars of each. The importance of having accurate nominal rolls and records of patients cannot be too strongly emphasized. All patients able to walk about are encouraged to get up into the fresh air from the troop-decks during the day, but all must be beside their bunks at a fixed time each day, to be seen by the medical officer, and to enable the clerks to check their names. On arrival at the ship's destination the nominal rolls must be complete, and the patients classified according to instructions. If possible the slightly wounded are disembarked first. This is a good thing to do, as otherwise they are apt to wander about the ship and render the disembarkation of the "stretcher" cases more difficult. An orderly is posted at the top of the gangway, and no one is allowed on or off the ship unless authorized. Special care must be taken to prevent patients crowding round the top of the gangway.

Cabins are reserved for patients, who are able to walk about. The same applies to the promenade and boat decks. Awnings and wind screens are put up where necessary. Accommodation for the sleeping and messing of the Army Medical Corps details has to be set aside also.

All is now ready, and the ship has been prepared in a short space of time. When the boat loaded with wounded arrives, the Senior Medical Officer tells off one or two officers, if available, to take charge of the embarkation, and the remaining medical officers and the orderlies take post in their respective wards. A few orderlies remain to act as guides to the walking cases, who are taken on board first, and later to carry the stretcher patients. As the men come on board, the medical officer detailed for this duty allots them to the various wards, whither they proceed, and the orderlies then see that the bunks further away are occupied first, and that every patient is made to lie down at once, and is served with food and drink, if able to have the same. Any cases requiring immediate dressing are attended to, but as far as possible the patients are allowed to go to sleep. The majority of them are thoroughly tired out, and suffering from shock, and sleep for several hours. It is a fatal mistake to attempt to dress all cases as soon as they are taken on board, and operations must not be rushed.

The theatre orderly and the dispensers have meantime distributed dressings to each ward. Lotions are avoided as far as possible, except peroxide of hydrogen, which is invaluable for septic wounds. Each medical officer is given a definite number of patients to look after, and is told that he is personally responsible that all the patients under his care have their wounds properly dressed, and that cases needing operation are reported without delay. Only cases, which will not wait with safety until the base is reached, are operated upon. The bulk of the operative work can be done at night, whilst the whole of the day is devoted to doing necessary dressings. By this means all the medical officers can exer-

cise personal supervision in the wards during the day.

Long open spaces are the most suitable for carrying wounded, as under such conditions the patients can be more easily seen by and attended to when nursing orderlies are few in number, and the ventilation is better than in cabins. Cabins are not desirable even for the accommodation of wounded officers, who are apt to forget that they are hospital patients, and cannot have the same privileges as when travelling on a liner.

With the difficulties to be contended with in the present war any medical officer may be called on unexpectedly to deal with wounded on an ordinary troopship, and the adoption of some definite mode of procedure will help him greatly. In conclusion it cannot be too strongly emphasized that once a medical officer volunteers for active service he must be prepared to do any work given to him cheerfully and willingly, wherever and whatever it is, and it should be borne in mind that it is impossible for everyone to be doing surgical work all the time. After a big action surgical cases predominate for a short time, but they soon give way to medical cases, which must be attended to by surgeons, if necessity demands.

Reports of Cases.

A CASE OF QUININE DEAFNESS.¹

By R. H. Pulleine, M.B.,
Adelaide.

The following case is worth reporting, as the condition seems to be rare, and a great many cases important to our literature are lost from want of publication.

Mrs. H., 55, a woman living all her life in South Australia, has long noticed a defect in her hearing. This she dates back 27 years, when she had an attack of pleurisy. At this time her husband gave her quinine tonic, which he prepared by tipping a packet of quinine into a bottle of port and giving her a glass full for a dose; ever since then she has never been able to hear high notes or shrill sounds. She has a musical family, members of which play piano, violin, piccolo, viola and flute. Of these instruments, she cannot hear the piccolo; on the viola she can hear all the notes, the flute fairly well, while on the violin she can hear to A on the E string and on the piano to the C about the fifth octave $C^5 = 1024$. She can also hear the train shunting at the station, half a mile away, but cannot hear the whistle; she hears a rooster flapping his wings, but does not hear the crow.

With the deafness she has had persistent tinnitus, worse when she has a cold, when she says she goes quite deaf. On examination she hears $C^5 = 1024$.

There is no lateralization of the Weber test, and there is a negative Rinne.

The standard watch is not heard, even on bone contact; speech is heard well at close quarters, but not well at over three metres, and low pitched voices are heard better than high ones, which is contrary to the usual condition in deafness.

On examination of the ears, normally transparent membranes, without retraction or adhesion, and with patent tubæ, were discovered; there was nothing abnormal in the nose or throat. Inflation was negative, and no apparatus improved the hearing.

Disturbances of hearing with tinnitus are frequently complained of during medication with quinine, but these effects

¹ Read at a Meeting of the South Australian Branch of the British Medical Association on November 25, 1915.

are rarely permanent. Both the opticus and acusticus, or their special endings, are, however, at times organically affected. Whether this is due to hyperæmia or anæmia, or the intrinsic intoxication, does not seem to date to be absolutely settled. Whilst some observers claim to have observed hyperæmia and hæmorrhage in the labyrinth in animals fed with quinine, others put the condition down to anæmia of the same parts.

It seems clinically certain that both anæmia and hyperæmia of the labyrinth give rise to tinnitus, and that quinine hydrobromide is useful in tinnitus, which occurs as a symptom in general anæmia, by causing mild hyperæmia.

On the other hand, in full-blooded persons, quinine increases the tinnitus.

A micro-hæmorrhage or exudation into the labyrinth would explain the extinction of part of the scale of sounds from destruction of the labyrinthine cells; just as the micro-hæmorrhages in the retina cause scotomata in the visual field.

Massive hæmorrhages, on the other hand, give rise to Menière's disease, although not invariably, as pathological specimens exist of massive labyrinthine hæmorrhage and exudations, which in life were not accompanied by Menière's complex.

Reviews.

PYELOGRAPHY.

Although the scope and value of pyelography as an aid in the diagnosis of obscure diseases of the kidney and ureter has been widely recognized for several years, it is only recently that a text-book has appeared, dealing with the subject in all its aspects. Dr. W. F. Braasch has published a work,¹ in which the methods employed in the Mayo Clinic are described in considerable detail. The experience of several thousand pyelograms is utilized for the purpose.

The author prefers a 10% collargol solution as the injection fluid. He uses the gravity method, and limits the quantity of solution injected into the pelvis and ureters to from 4 to 5 c.cm., unless a smaller quantity causes pain. From the point of view of the comfort and safety of the patient, and to ensure greater accuracy in defining the pelvic outline, we consider that this method is inferior to that of estimating the pelvic capacity with a coloured solution and subsequently injecting a quantity, slightly less than the measured capacity, of a 10% to 15% solution of silver iodide, by means of a syringe. The importance of this has already been dealt with in the pages of this Journal. The effect of incomplete distension of the pelvis and calices is evidenced in many of the pyelograms. In several instances a repetition of the pyelographic procedure, with increased distension, had to be carried out. The value of many of the pyelograms is somewhat discounted by insufficient information being vouchsafed of the surgical nature of the lesion portrayed, and by the absence of details concerning the precise cubic content of the renal pelvis.

The different types and grades of "mechanical dilatation" and of "inflammatory dilatation" are particularly well demonstrated. It is, however, unfortunate that the reader is left in ignorance as to the causes of these forms of dilatation until a later part of the book is reached. This necessitates constant references to previous pages, which is annoying. The author could easily have obviated this defect by placing adequate legends at the foot of each pyelogram. The value of the work, as an atlas of pyelography, would have been enhanced had this been done. The section illustrating the normal pelvis is excellent, and will repay the closest study. The chapters dealing with the diagnosis of hydronephrosis, tuberculosis and ureteral obstruction due to aberrant vessels, to stone, to tuberculosis and to other causes, are well worked out and convincingly illustrated. The chapter on renal tumours contains full descriptions of the X-ray diag-

nosis of neoplasms, polycystic kidney and solitary renal cysts. The deformities caused by these conditions in the outline of the renal pelvis and ureter are beautifully illustrated. The book concludes with a chapter on congenital anomalies of the kidney and ureter, which are comparatively rare, and, consequently, are of considerable surgical importance.

The fact that this work is based on the results of several thousand pyelograms, and that in no instance were any serious after-effects produced by the procedure, is sufficient evidence that pyelography is highly valued at the Mayo Clinic. In skilled hands it is a safe operation.

Dr. Braasch's book is a record of his exceptional industry and undoubted ability. It is worthy of the most careful consideration of everyone interested in the problems of urology, and will afford valuable food for reflection for those unacquainted with this most recent and important addition to urinary diagnostic methods.

Medical Matters in Parliament.

WESTERN AUSTRALIA.

(Continued from page 87.)

The Committee resumed on October 26, 1915, when Dr. Saw withdrew his amendment by leave.

The Hon. A. G. Jenkins moved an amendment:—

That the following be added, to stand as subsection 5: "When any person is subject to examination or detention under the provisions of this section, and is found not to be suffering from venereal disease, or to be suffering from venereal disease, but not in an infectious stage, or to be suffering from venereal disease in an infectious stage but not likely to infect others, he shall be entitled as of right to inspect any written statement made to the Commissioner under subsection (1) of this section, and to have a verified copy of every such statement."

The amendment was put and passed.

The Hon. F. Connor moved an amendment:—

That the following new subsection be added: "(9) Any person who fails to substantiate any information given to the Commissioner that a person is suffering from any venereal disease shall be guilty of an offence under this Act. Penalty: Fifty pounds, or imprisonment with hard labour for six months."

A discussion ensued, in which it was asserted that an aggrieved person would have a better remedy at civil law when he would obtain large damages. It was also asserted the clause would paralyse the administration of the department, as no officer would dare to furnish a report.

The Hon. J. Duffell moved an amendment on the amendment, that in line 7 the word "Fifty" be struck out and "One hundred" inserted in lieu, and in the last line the word "six" be struck out and "twelve" inserted in lieu.

The amendment on the amendment was put and passed.

The amendment, as amended, was put, and a division taken, with the following result: Ayes, 7; Noes, 17; Majority against, 10.

The proposed new subsection, as amended, was thus negatived.

After a lengthy discussion, the proposed new section, as amended, was put, and a division taken, with the following result: Ayes, 15; Noes, 8; Majority for, 8.

The proposed new section thus passed.

Clauses 4 and 5 were agreed to.

The title was agreed to.

The Bill was reported with amendments.

A few minutes later the Bill was recommitted, on the motion of the Colonial Secretary, for the further consideration of the proposed new sections 242d, 242e and 242i.

The Hon. A. J. H. Saw moved an amendment on section 242d (medical practitioner to report cases of venereal disease), that after "penalty" the word "twenty" be struck out and "five" inserted in lieu.

¹ Pyelography (Pyelo-Ureterography): A Study of the Normal and Pathological Anatomy of the Renal Pelvis and Ureter, by William F. Braasch, M.D., 1915. Philadelphia and London: W. B. Saunders Company; Melbourne: James Little & Co., 8vo., pp. 323, with 296 pyelograms. Price, £1 2s. 6d.

The amendment was put and passed, and the new section, as amended, agreed to.

On clause 242e (name and address of patient to be reported on failure to continue treatment), the Hon. A. J. H. Saw moved an amendment that after "penalty" the word "fifty" be struck out and "five" inserted in lieu.

The amendment was put and passed, and the proposed new section, as amended, agreed to.

On the proposed new section, 242i (compulsory examination) the Colonial Secretary moved an amendment:—

That the proposed new subsection (1) be struck out, and the following inserted in lieu: "Whenever the Commissioner has received a signed statement, in which shall be set forth the full name and address of the informant, stating that any person is suffering from venereal disease, and whenever the Commissioner has reason to believe that such person is suffering from such disease, he may give notice in writing, to such person, requiring him to consult a medical practitioner, and to produce to the satisfaction of the Commissioner, within a time to be specified in the notice, a certificate of such medical practitioner that such person is or is not suffering from the disease, and if such certificate is not produced within the time stated in such notice, or if the Commissioner be not satisfied with such certificate, he may, by warrant under his hand, authorize any medical officer of health or any two medical practitioners to examine such person to ascertain whether such person is suffering from such disease, and the said officer or practitioners shall have power to examine the person accordingly, and shall report the result of his or their examination to the Commissioner in writing. Provided that where the person to be examined is a female, and the examination is to be by two medical practitioners, one of such practitioners shall, if so desired by the person to be examined, be a female medical practitioner, if able and willing to act, and within twenty miles of the place where the examination is to be made."

The amendment was passed, and the proposed new clause, as amended, agreed to.

The Bill was again reported with further amendments. On October 28, 1915, the Colonial Secretary moved that the Bill be now read a third time.

The Hon. W. Patrick repeated his objection to the statements that these diseases were increasing, and quoted the official figures for the death-rate and the infantile mortality.

The question was put and passed.

The Bill was read a third time, and returned to the Legislative Assembly, with amendments.

On November 3, 1915, the Health Act Amendment Bill was received from the Council, with amendments by the Legislative Assembly.

The Legislative Assembly considered on November 17, 1915, the schedule of 21 amendments made by the Legislative Council in the Health Act Amendment Bill. The Assembly sat in Committee.

Amendment No. 1, to clause 242a (subclause 2, line 4, after the word "two" insert "a registered pharmaceutical chemist who sells or") was taken first.

The Hon. R. H. Underwood, Honorary Minister, said that he intended to move that all the amendments of the Legislative Council be agreed to. The bulk of the amendments were what might be termed amplifications of what was in the Bill previously. The only clause making any material difference was the proposed new section 242i. After consultation with the Medical Department on the matter, he was convinced that they had ample power in the Bill.

The Council's amendment was agreed to.

Amendments Nos. 2 and 3 were agreed to.

On amendment No. 4, clause 242d (substitution of "five" for "twenty" in penalty), Mr. George thought that the higher penalty was not too large. If a medical man did not perform his duty he should pay for his neglect.

The Honorary Minister said that he had never been in favour of a large penalty. A conviction against a medical practitioner would be a sufficient penalty to prevent him committing the fault again.

The amendment was agreed to.

Amendments Nos. 5 to 9 were agreed to.

On amendment No. 10, clause 242i, subclause 2, dealing with detention (after the word "disease" insert "in an infectious stage and is in the opinion of the Commissioner likely, unless detained, to infect other persons"), Mr. Gilchrist inquired whether the Minister was making any provision for the detention of infectious cases, and at whose expense.

The Honorary Minister said that he was not yet in a position to answer the question. He had consulted the Commissioner, who was anxious to institute night clinics.

The amendment was agreed to.

Amendments numbered 10 to 12 were agreed to.

On amendment No. 14, clause 242i (person accused and found not to be suffering to see written statement made against him), Mr. George asked whether a person would be allowed to see the statements made to the Commissioner. He asked whether this did not open up the possibility of prosecution for defamation of character.

The Honorary Minister said that while the section would prevent many people from giving information that might be of use to the department, it would, on the other hand, protect citizens from malicious persons. With this provision the department had ample power, and the amendment protected innocent people from accusation at the hands of any spiteful person.

The amendment was agreed to.

Amendments Nos. 15 and 16 were agreed to.

On amendment No. 17, to add a new clause, 242l (all proceedings to be in camera), Mr. Gilchrist asked for the reason for this clause. Proceedings in camera against a person were always dangerous. He understood the necessity for keeping these matters confidential. He presumed a full and clear account of the proceedings would be kept for future reference.

The Honorary Minister thought the amendment advisable. After all, persons would not be charged with crimes under this measure. In the event of the department making a mistake, it would be inadvisable to have it published in the newspapers. Even if the proceedings were justified, publication would not be altogether desirable. The Children's Court was conducted much on the lines as were laid down for the Court under this measure.

The amendment was agreed to.

Amendments numbered 18 to 21 were agreed to.

The resolutions were reported and the report adopted, and a message accordingly sent to the Council.

On November 18, 1915, the Legislative Council received from the Assembly a message notifying it that the amendments made by the Council had been agreed to.

The Royal Assent was signified on December 8, 1915.

THE ROCKHAMPTON LOCAL MEDICAL ASSOCIATION.

The following office-bearers were elected on January 14, 1916, at the Annual Meeting of the Rockhampton Medical Association for the year 1916: President, Dr. Stuart; Vice-President, Dr. McKenzie; Hon. Treasurer and Secretary, Dr. O'Brien; Members of the Committee, Drs. Brown, Parry, Voss, Buchanan and Church.

THE BELGIAN DOCTORS' RELIEF FUND.

Dr. W. H. Crago, the Honorary Treasurer of the New South Wales Branch, has received the following letter from Dr. H. A. Des Voeux, the Honorary Treasurer of the Belgian Doctors' and Pharmacists' Relief Fund in London:—

Dear Sir,

I thank you very heartily for the subscription received to-day from the New South Wales, Queensland, and Tasmanian Branches of the British Medical Association, of £260. We are most grateful for this valuable assistance. I note what you say as to promised subscriptions having been deflected to the fund for Australian wounded. Though we are the sufferers, I fully appreciate that the needs of your own men, who have fought so gallantly, must come first.

I enclose a formal receipt.

Yours very truly,

(Signed) H. A. DES VOEUX.

The Medical Journal of Australia.

SATURDAY, JANUARY 29, 1916.

The Health Act of Western Australia.

In the present issue, the account of the debates in the two legislative chambers on the Health Act Amendment Bill is concluded, and, in view of the considerable modifications which the Bill has undergone before it was entered into the Book of Statutes, the full text of the Act will be published next week. The Act is a very interesting and important piece of experimental legislation, and, as such will be watched closely by hygienists, not only in the Western State, but also in every corner of the British Empire. It is impossible at the present juncture to anticipate the effect of this Act, and for this reason, as well as for many others, we venture to hope that its provisions will not be introduced into fresh legislation in other States until time has proved their value in the present instance.

There are various aspects of the venereal disease problem which are open to discussion. The Act involves many of them, but not all. It does not touch on the social evil. That is to say, it has not been introduced with a view of limiting prostitution or of lessening illicit sexual intercourse. Since the aim of its promoters is to lessen the extent of venereal disease, it is conceivable that the result might be an actual increase of sexual profligacy. Were the deterrent, fear, removed, partly or wholly, sexual indulgence would certainly tend to increase. This aspect, however, is not the hygienic one with which the medical profession is required to deal. Moreover, hygiene is forced to choose between two evils, that of allowing grave diseases to create untold misery among the members of the community and that of removing the dangers attending promiscuous sexual indulgence, thus diminishing the one potent restriction. Hygiene is bound to choose in favour of diminishing disease, more especially because the innocent are made to suffer as well as the guilty.

The next general principle raised is equally treacherous. The hygienist and the legislator, on attack-

ing the problem, have to suggest means which are unpalatable to everyone, and it is not always certain whether the remedy is not as disastrous as the defect it is supposed to remove. In view of this danger, experiments should be undertaken with especial caution, for if the cure be not effected, the damage will be all on the side of the remedy.

On October 9, 1915, the general provisions of the Bill on its introduction were briefly discussed in these columns. The Act may be subjected to an equally brief survey now. This is undertaken with a view of illuminating the Act from the point of view of its utility as a measure for the restriction of infection and not of the expediency of the provisions. Many of the clauses, however, should receive universal approval, inasmuch as they are not associated with disadvantage to the victim. The first principle is that no one except a registered medical practitioner may treat a person who is suffering from a venereal disease. Attached to this clause are provisions for the legitimate sale by registered pharmaceutical chemists of preparations required for the proper treatment of these diseases. The second principle is that every person, who is suffering from a venereal disease, shall consult a medical practitioner within three days of becoming aware of or suspecting the nature of the infection. The whole utility of the Act depends on whether this provision can be enforced. The exemptions appear to be harmless and necessary, and need not endanger the main requirement. This clause should be considered, together with a subsequent clause, which provides for the enforced examination of any person supposed to be suffering from venereal disease. The machinery which has received legislative approval is the following: If the Commission receives a statement bearing the name and address of the informant, to the effect that a person is suffering from venereal disease, he may require the person to produce a medical certificate. If no certificate is forthcoming within a reasonable time, or if he is not satisfied with the certificate, he may order an examination to be carried out by a medical officer of health, or by two general practitioners. The practitioner or practitioners must then report to the Commissioner, and in the case that this suspected

diagnosis is confirmed, the person is to be detained at a place and for a period to be determined by the Commissioner, until it can be proved that the person is no longer in a condition to infect others. It will be noted that anonymous information is not to be permitted, and, although some safeguards have been introduced against unwarranted examination or wrongful detention, no provision is made for any appeal from the decisions of the Commissioner. It is not certain whether these means will suffice to bring under the provisions of the Act persons who endeavour to elude it. Unfortunately, there are no means by which this point can be tested. If infected persons avoid the medical practitioner and are not brought under the notice of the Commissioner, their cases will not be notified and the infection will be statistically non-existent.

The clause which requires medical practitioners to inform the Commissioner of the name and address of his patients who have absented themselves from treatment for six weeks, and who have presumably not consulted another practitioner, may work satisfactorily in the case of the ordinary patient, but we can conceive conditions in which this notification may be practically impossible. Moreover, practitioners will have to adopt an unusual method of recording the visits of these patients, if they are to be fined five pounds every time they forget to send in the notification.

It may be advisable to review the whole question of the provision of free bacteriological examinations on another occasion. For the present, we content ourselves by calling attention to the fact that the laboratory diagnosis is to be supplied free of charge by the Health Department in all cases of suspected venereal affection. We have already expressed the opinion that the clause dealing with the publication of statements intended to promote the sale of medicines or other instruments for the treatment of venereal diseases, sexual disorders or infirmities and the like are not sufficiently stringent to exclude the most dangerous form of quackery.

The Act represents "something attempted." Time will teach if it will lead to "something done."

MALARIA.

In the present issue an important contribution on the characteristics of malaria contracted by our

soldiers in New Guinea and on the treatment adopted at Townsville in obstinate infections, written jointly by Dr. A. Breinl and Dr. H. Priestley, finds some supplementation in a short record of a conference on the malaria question (see page 106). The article referred to does not call for any extended elaboration. It has been carefully thought out, and bears the impress of men who are not only familiar with their subject, but who have exercised ingenuity in coping with the problem of treatment. The members at the conference dealt with the problem with a view of recommending the authorities as to the measures which should be adopted to prevent returned infected soldiers from transmitting malaria to the community. The usual argument, which has its origin in a scientific guess, has been put forward in regard to the necessary concentration of anopheline mosquitoes to form a risk. It is possible, and even probable, that malaria will not spread into an epidemic in districts where this mosquito is a comparatively rare inhabitant. It may be admitted that a sparse anopheline population represents a concentration which is incompatible with a malarial spread. There is, however, no guarantee that this concentration is a stable one, and theoretical considerations suggest that even a low concentration may provide a starting point for a malaria epidemic, should the conditions become favourable for an increase in the number of the specific mosquito. The conference has recommended careful control of the infected soldiers, and avoidance of the areas in which the anophelines are plentiful or may be plentiful as recruiting areas or as places to which soldiers may be allowed to return after discharge from service. It would thus appear that the members of the conference had no great confidence in the security of a "too low concentration" of anopheline mosquitoes. The requirements for an epidemic outbreak of malaria are, firstly, a focus of infection, and secondly, the presence of anophelines as regular inhabitants. The concentration of mosquitoes and the density of human population are factors on which reliance should not be placed, since chance may play a part in the process of infection, and both mosquitoes and man are not stationary, either in regard to numbers or to distribution. At the present moment some of our returned soldiers are infected with malaria, and

anopheles exist in considerable quantities in certain districts and as isolated individuals in other areas. It is easy to apply prophylactic measures now. It may be difficult later on.

THE CAUSES OF INVALIDITY.

The results of an exhaustive analysis of the reasons for which pensions are paid has revealed an undue amount of incapacity traceable to preventable disease. Moreover, the same causes are responsible for a large number of deaths within the Commonwealth each year. Public health authorities have regarded these matters, and have attempted to introduce measures which would effect a reduction in both morbidity and mortality. As a result, many diseases have been stamped out, a marked reduction in the frequency and fatality in others has been achieved, and a general improvement in the public health has resulted. The Minister for Trade and Customs has considered this problem, as revealed by the sum of money paid to persons unable of following a calling or otherwise incapacitated, and has no doubt regarded the waste of public funds, as well as that of health, vigor and life itself as a subject worthy of strenuous opposition. The oft-quoted phrase of His late Majesty, King Edward VII., "If preventable, why not prevented!" is applicable to many factors contributing to this manifold waste. The Minister has formed the opinion that a careful and deliberate study of the causes of death and ill-health existing in Australia might lead to the recognition of those noxes which can be removed, and the discovery of the best means of attaining this end. Two examples will suffice to demonstrate the need for further action in the endeavour to limit invalidity and to reduce death from preventable diseases. The first is tuberculosis. During the year 1913, no less than 3,800 deaths from this disease occurred in Australia. This represents an annual loss of something like 7.2 per 10,000 persons living. Moreover, in the 57 months since the Invalid Pensions Act was brought into force (November 19, 1910, to August 27, 1915), 3,305 persons received pensions because they were incapacitated by this disease. The second example is that of infantile diarrhoea, which killed 3,176 children under two years of age during the year 1913. Australia's comparatively small population, the declining birth-rate and the relatively high infantile mortality are signals for an organized attempt to improve the health of the race, more especially at a time when so many men at the best procreative period of life are being lost to the Commonwealth.

With the object of having a scientific survey taken, the Minister has appointed a small Commission of trained men. The reference of this Commission has been announced, and is as follows:—

- (1) The collection of evidence as to causes of death in Australia; the consideration of the principal causes of death, and the indication of the general directions in which the reduction of such causes of death may rea-

sonably be anticipated by the application of suitable measures.

- (2) The indication of the general nature of suitable measures for the investigation and the prevention of the principal causes of death or invalidity.

It will be noted that general principles are to be discussed and details of administration and application are excluded. Expedition has been urged, and it has been suggested that the report of the Commission should be presented at an early date, presumably something like six months after its appointment. The constitution of the Commission is of importance. A chairman accustomed to direct discussions and consider evidence has been found in Mr. James Mathews, M.F.; the Dean of the Faculty of Medicine of the University of Melbourne, Professor Sir Harry Allen, has been chosen for obvious reasons; Dr. A. Jeffreys Wood has been added on account of his wide experience of children's disease and his capacity of taking a broad view of matters, and, lastly, Dr. J. H. L. Cumpston, the Director of Quarantine, not only because of his position as the highest public health official in the Commonwealth, but also on account of his extensive experience and undoubted ability in handling large problems. A committee of this kind commands confidence, and from it practical recommendations may be expected.

In examining the causes of incapacity and death, the Commission will be faced with many facts which have received attention at the hands of public health authorities in every country, and some which have been passed over, presumably because no practical methods of dealing with them have been devised. We venture to hope that the Commission will turn its attention with particular care to the causes of death and disablement in cases of disease of the cardio-vascular system. Vital statistics reveal a steady loss of health and life from affections which presumably arise from preventable diseases, such as rheumatism, syphilis, alcohol, lead poisoning and the like. The amount of invalidity due to these diseases is so considerable that it would seem that an effort should be made to bring some of the contributory factors under control, and, indirectly, if not directly, to check this waste of life and energy. The fact that heart disease, cerebral hæmorrhage, other forms of arterial decay, and the remoter effects of arterial disease on the kidneys and liver have not occupied the attention of hygienists in the past is no valid reason for their exclusion now or in the future, and no excuse for delay in attacking a very difficult problem.

The progress of the work will be watched with interest, and the report, when it is issued, will be examined critically. We hold the opinion that the appointment of the Commission is a wise step in the right direction.

THE STERILIZATION OF GELATINE.

At a meeting of the *Société de Médecine de Paris* held on September 24, 1915, Dr. P. Huerre gave a

valuable review¹ of the various methods employed for sterilizing gelatine for therapeutic purposes, with especial reference to the killing of tetanus bacilli and their spores. He pointed out that this matter was considered to be of such importance that the *Académie de Médecine* appointed a committee in 1903 to consider this question. The Commission charged with the revision of the Codex to the French Pharmacopœia appended the formula suggested for the purpose. Ten grammes of gelatine are dissolved in a litre of a 0.7% saline solution over a water bath. If the solution is found to be acid, it is neutralized with decinormal soda solution. The solution is then heated in an autoclave for 10 minutes at 110° C., and, later, the sterilization at 110° C. is maintained for fifteen minutes. The Swiss method is to test the solution before and after sterilization by injection into guinea-pigs and mice. Several proposals have been made in regard to the method of sterilization, from that of fractional sterilization (tyndalization) at 100° C. for a quarter of an hour each day for three days, to repeated autoclaving at 120° C. The author has taken into consideration the fact that the physical characters are disturbed by heating to these temperatures, and has analysed the chemical changes consequent on overheating. He finds that heat liquifies gelatine and prevents its subsequent solidification, and at the same time peptonizes it. The addition of neutral salt, such as sodium chloride utilized for the preparation of physiological saline solution, also retards the setting of gelatine, or may even liquify it if in sufficient concentration. Neutral salts, however, do not peptonize gelatine. Pouchet and Triollet have demonstrated that the peptonized solutions of gelatine are just as efficacious as hæmostatics and coagulants as unaltered gelatine and other clinicians have even found it advantageous to add Witte's peptone to saline solution in the treatment of hæmorrhage, purpura, etc. Dr. Huerre finds that it is preferable to employ a solution of gelatine, which is known to be sterile, even if it is somewhat changed chemically, to a chemically pure gelatine, which may harbour tetanus bacilli. Sterilization by means of ultra-violet rays is not applicable to solutions of gelatine, since colloids render the medium extremely little permeable to the rays. It would thus appear that gelatine may be heated in the autoclave to 110° C. on two occasions without destroying its therapeutic action as a hæmostatic, and that reliance can be placed on this procedure as a means of sterilizing the solution.

MEDICAL TREATMENT OF SCHOOL CHILDREN.

According to the *Age* of January 16, 1916, the Minister of Public Instruction of Queensland is considering the question of adopting a system of travelling vans for districts covered by the itinerant teachers, in order to give medical treatment to children beyond the reach of hospitals.

The ground covered by the teachers referred to is sparsely populated, and not within reach of railway or hospital service. The Queensland Branch will no doubt communicate with the Minister before any definite plan is decided on in regard to the districts to which it is proposed to send the travelling clinics.

Naval and Military.

The 134th list of casualties sustained by the Australian troops was published on January 21, 1916. Under the heading "Ill in Hospital" the following names appear: Captain C. Morlet (seriously), Captain W. de W. Henty (seriously), Captain C. F. Pitcher, Captain W. R. Cavanagh Mainwaring, Major Herschel Harris (no record, ill in London), Major G. W. Barber, and Captain R. A. P. Waugh. Under the heading "Progress Reports," the names of Captain A. V. Honman (progressingly favourably) and Captain F. le Messurier (removed from service list).

In the 135th list the name of Major R. Macdonald and Captain C. G. Farmer appear among the "Ill in Hospital," while it is announced that Captain P. C. A. Davenport has returned to duty.

It is with the greatest regret that we have to announce that Captain F. Miller Johnson was killed in action at Gallipoli on November 29, 1915. Further particulars are not yet to hand.

THE MENTAL DEFECTIVES ACT (1913) OF SOUTH AUSTRALIA.

His Excellency the Governor-in-Council has approved of a set of regulations under The Mental Defectives Act of 1913. These regulations have been published in the *South Australian Government Gazette*, No. 49, under date December 2, 1915. The regulations take the form of a definition of the functions, powers and duties of every member of the staff or other persons employed in connexion with the institutions for the care of the insane and include minute instructions in regard to the manner in which the patients shall be handled. These regulations have been drawn up with considerable care and forethought, and provide for every probable contingency.

The Department having control of hospitals for mental defectives is to be known as the Department of the Inspector-General of Hospitals. The permanent head of this department is the Inspector-General. The Department is to have the function of enquiring into any complaint reported to it, and subject to the written approval of the Minister to dismiss, suspend or fine (up to £5) any employé; to consider and approve plans and specifications for building or altering any institution under the Act, and to act generally as a supervisory body.

The Superintendent of a Mental Hospital is required to devote the whole of his time to the duties of his office. He has to visit the wards and see all the patients each day, and visit all parts of the hospital under his control as often as possible. He has to see that one of his medical officers visits the ward every night. He is held directly responsible for the treatment of all the patients under his care, and for the proper management of the institution. He has the power to suspend any attendant, nurse, artisan or servant, and may reprimand, caution or inflict a fine not exceeding £3 for leave-breaking, negligence that may lead to the escape of a patient, disobedience of orders, neglect of duty or other breach of regulation. A special regulation deals with the right of an attendant or other employé to be present during the enquiry of any complaint, and to call witnesses. The person against whom a complaint is lodged has a right to appeal to the Board against the decision of the Superintendent.

The duties of the Deputy Superintendent are also set forth. During the absence of the Superintendent he shall have all the powers and immunities, and shall perform all the duties and functions of the Superintendent.

The duties of the Junior Medical Officers include a general control over the conduct of the attendants, nurses and servants, the making of *post-mortem* examinations, and the performance of other medical services as directed by the Superintendent. They are required to attend the entertainments given for the benefit of the patients as often as possible, and to endeavour to interest them in their occupations and amusements.

The Chief Clerk and Steward is responsible for all the goods, and has to take precaution to prevent loss or waste. He issues uniforms, keeps the accounts, acts as treasurer, and has control and supervision over the subordinate officers

¹ *Bulletins et Mémoires de la Société de Médecine de Paris*, No. 15, 1915.

in his department. He is required to make himself familiar with the provisions of the Act, and to be responsible that all orders, certificates, requests, and other documents relating to the admission and discharge of patients are in accordance with the Act. He has to make the necessary arrangement for the burial of any patient who has died in the Hospital. The clerk and assistant steward acts as assistant to the steward and as his *locum tenens* during his absence.

The Head Attendant has charge of clothing, bedding and other articles on the male side of the institution, and is responsible for the reception of new male patients, for the employment of the patients, and for the work of the attendants generally. He is required to visit the resident attendants' quarters, and to report to the Superintendent any disorder or want of cleanliness. He is in charge of the fire-fighting party. In the case of fire the safety of the patients shall be his first consideration. The Assistant Head Attendant acts as his deputy during his absence.

The duties of the Matron and of the Assistant Matron are also set forth. The Matron is required to instruct those under her control in their respective duties, and to be responsible for the order and cleanliness of the nurses' rooms. She has to be present at the admission of female patients, and to hand the personal property of the patients to the Steward.

The Dispenser has to be legally registered under the Pharmacy Act of South Australia. Where no dispenser is engaged, the duty of dispensing devolves on the Junior Medical Officer. The duties of the dispenser are set out in detail.

The regulations defining the duties of the storekeeper, attendants and nurses occupy over three pages. In regard to the attendants and nurses, emphasis is laid on the fact that the Mental Hospital and the Hospital for Criminal Mental Defectives are maintained for the treatment of persons suffering from defect or disease of the brain affecting their mental power. Consequently everything must be done to expedite the recovery of the patients, or where recovery is impossible, to further the amelioration of their condition. Consideration, sympathy and forbearance must be shown by all nurses and attendants. They are required to study the peculiarities and character of the patients, and to take a personal interest in them. They are also required to endeavour to influence them by example, more especially in regard to good conduct, habits of neatness and order, quietness and self-control. The regulations set out in considerable detail how these ends may be achieved, and instructions are added for the protection of patients of a suicidal or homicidal nature.

Under general regulations those affecting the cleanliness of the institution, the separation of the sexes, the employment of mechanical restraint, the seclusion of patients and similar matters are dealt with. Eight special regulations deal with the particular duties of attendants at the Hospital for Criminal Mental Defectives at Parkside.

GENERAL HOSPITAL, LAUNCESTON.

The Annual Report of the Board of Management of the General Hospital, Launceston, for the year ending June 30, 1915, contains some interesting information in regard to the position of the institution. The gross expenditure for the year amounted to approximately £10,820 as compared with £10,588 for the previous year. The gross cost per bed was £70 7s. 4d., and the net cost £52 0s. 2d. The Board installed electric light out of its private funds throughout the Hospital, and had the greater part of the interior painted. An X-ray equipment has been added to the Hospital. The chalets erected in 1912 as temporary wards for infectious illnesses were still in use, although it was recognized that they were unsatisfactory. A modern isolation hospital for Launceston is urgently needed.

It appears that the Hospital serves a district containing about 100,000 inhabitants. The General Hospital and five smaller institutions are the only places where the sick poor can receive attendance. With the exception of the maternity cases, every class of medical work is carried out in the hospital. It contains 160 beds, 20 balcony beds, and 12 beds at the Convalescent Home, Perth. The patients contribute a certain amount to the maintenance, and the rest

is provided by the Government. There is a small income from invested sums. The control of the institution is vested in a Board of Management, consisting of 13 members, appointed with the approval of the Governor-in-Council. The financial arrangements are in the hands of the Board. The staff consists of a Surgeon Superintendent, a House Surgeon and an Assistant House Surgeon, a House Steward, a Clerk, a Dispenser, a Lady Superintendent, a Secretary to the Board, a Matron, nurses and servants. The nursing staff comprises 45 individuals, and the domestic staff 30.

On July 1, 1914, there were 123 patients in the hospital. During the course of the year, 1940 patients were admitted, and at the end of the year 149 patients were still under-treatment. It thus appears that 1,914 persons completed their course of treatment or died in the institution. Of this number 1,478 were discharged cured; improvement resulted in 269 cases, 15 patients were regarded as incurable, 28 were discharged without any improvement, and in 10 cases the patients left the hospital at their own request or for other reasons. The number of deaths was 114, which is equivalent to a case mortality of 5.7%.

The countries of origin of the 1,914 patients is given in a separate table. In 1,769 the patient was a native of Australia, 85 patients came from England and Wales, 25 from Ireland, 10 from Scotland, 12 from British Dominions, and 13 from foreign countries. Alcohol was used in the treatment of 58 patients, and the total amount expended on this was £5 6s., which is equal to about 1s. 9½d. per patient. The average number of days spent in hospital by each patient was 26, and the daily average of patients in the hospital was 147. Of the total number of patients, 983 contributed to their own maintenance. Enteric fever attacked 44 patients during the year, and ended fatally 4 times. There were 84 cases of diphtheria under treatment, with 4 deaths.

Separate tables are given of the details of the surgical operations performed, and of the affections treated during the year. The total number of operations amounted to 995. The most frequent was appendicectomy (174), without any deaths. To this, 24 operations for appendicitis with suppuration, with 2 deaths should be added. The removal of adenoids and tonsils was undertaken 109 times. The operative cure for inguinal hernia was performed 83 times. Salpingectomy and salpingo-oophorectomy for pyosalpinx, for chronic tubo-ovarian disease, and for ruptured ectopic gestation were performed 30 times. Minor operations, such as incision for abscess and cellulitis, curettage, circumcision were performed numerous times.

Of the diseases treated, the following may be selected for special mention. There were 42 cases of tubercular infection, including 13 pulmonary tuberculosis, 2 of tubercular peritonitis, 7 of tubercular meningitis, and 20 of tuberculous of other organs. Fifteen of the patients died. In 50 cases sepsis is entered as the cause of the disease. In 5 cases the affection was puerperal, and in 4 it is entered as erysipelas. Six of these patients died. There were 37 cases of carcinoma, with 5 deaths, and 5 of sarcoma, with 1 death. Diseases of the heart were treated 37 times, with 9 deaths, cerebral hæmorrhage, embolism and thrombosis 20 times, with 2 deaths; senile gangrene 3 times, with 3 deaths, and other diseases of the cardio-vascular system 23 times; lobar pneumonia occurred 42 times, and was fatal 8 times, while broncho-pneumonia occurred 30 times, with 5 deaths. There were 59 cases of bronchitis, 30 of pleurisy, 5 of asthma and 2 each of empyema and emphysema.

Gastro-enteritis occurred 46 times, and was fatal 6 times. Gastric or duodenal ulcer occurred 5 times, with one death. gastric catarrh occurred 47 times, non-epidemic enteritis occurred 8 times, with 1 death, appendicitis occurred 170 times, with 2 deaths, and other diseases of the gastro-intestinal tract occurred 6 times, with 5 deaths. Non-malignant tumour of the uterus and ovaries were dealt with 11 times, while other diseases of the female genital organs, including the breasts, occurred 113 times.

A short account of the record for the year of the Gibson Convalescent Home is appended. During the year, 98 persons were admitted from the General Hospital, while 7 were in the Home on July 1, 1914. Of the 105 patients under treatment, 103 were discharged during the 12 months. The average cost per occupied bed was £66 0s. 6d. Each patient spent an average of 17 days in the Home.

Abstracts from Current Medical Literature.

PATHOLOGY.

(32) The Blastophthoric Effect of Chronic Lead Poisoning.

It has long been recognized that lead, among other toxic substances, affects the germ plasm of both male and female of the human species. Lead poisoning in the mother, and at times even in the father, often results in the still birth of the fetus. C. V. Weller (*Journ. Med. Research*, November, 1915) has investigated this subject in guinea-pigs, with a view of determining the blastophthoric effect of chronic saturnism. The lead was given in the form of commercial white lead, in capsules, each containing about 0.045 grms. Breeding experiments were undertaken with the animals thus poisoned. The administration was continued for periods up to twelve months. It was found that the number of offsprings of poisoned males and normal females, or of poisoned females and normal males, was not materially different from that of normal males and females. The weight, however, of the offspring at birth was markedly lower. An increase in the number of stillbirths was recorded in the case of matings of normal males with poisoned females, while the number of deaths in the first week of life was greater in the case of the offsprings of poisoned males and normal females. Only one of the lead poisoned males proved sterile. The author finds that after the administration of the lead has been stopped, reproductive power is apparently restored. This indicates that deleterious action is directed especially to that portion of the germ plasm which is undergoing maturation and not to that which is stored as undeveloped germinal epithelium.

(33) An Amœba in Osteoperiostitis.

K. M. Lynch reports the case of a negro woman, aged 23, who was submitted to the operation of resection of the left half of the lower jaw for a condition diagnosed as osteosarcoma (*Journ. Amer. Med. Assoc.*, December 11, 1915). The specimen showed a thickening of the bone, with rough surface communicating with small sinuses containing thick, white, granular pus. Microscopically, the tumour was found to contain newly-formed bone trabeculae, fibrous tissue and small areas of necrosis. The surrounding muscle was infiltrated. No bacteria were recognized, but the pus contained granular material, neutrophilic leucocytes, eosinophiles and numerous amœboid cells. The latter were about 40 microns in diameter. They had a distinct, clear ectoplasm, and a coarsely granular endoplasm of refractile bodies. No nucleus was recognizable. The cells moved from place to place by projecting large, broad, single pseudopodia.

The movement was slow. Red blood cells and leucocytes were seen to be taken up by the pseudopodia. The author has come to the conclusion that the amœbæ were not identical with Doflein's or Flexner's amœbæ, described in cases of suppuration in the mouth, nor were they the common mouth amœbæ. He is unable to prove that they stood in ætiological relationship with the growth, but holds that this was highly probable.

(34) Streptococcus Equinus Septicæmia.

A. J. Chalmers and G. Haddad record a case of a young Sudanese, who injured his left great toe and subsequently died of septicæmia (*Journ. Trop. Med. and Hygiene*, December 1, 1915). The injury had been neglected for some time, and a gland in the groin had suppurated and burst before he applied for treatment. There was cellulitis in the groin and scrotum and *streptococcus equinus* Andrewes and Horder was obtained in pure culture from the peripheral blood. The organism presented the following characteristics: It formed long chains. Each coccus measured 1.4 microns, was non-motile and non-encapsulated. It was Gram-positive, but not acid-fast. The colonies were small and translucent, and grew under anaerobic conditions at 22° C. and 37° C. The cocci grew well on agar-agar, glycerine-agar, and maltose-agar, but not on gelatine. It produced acid and gas in glucose, fructose, xylose, saccharose, maltose, dextrin, salicin, and erythrol, but not in arabinose, rhamnose, lactose, raffinose, inulin, starch, glycogen, amygdalin, glycerol, adonitol, dulcitol, and mannitol. It failed to clot milk or to reduce neutral red. It did not possess any hæmolytic action on human or rabbit's blood. After careful consideration, they have arrived at the conclusion that the streptococcus was identical with the organism described by Andrewes and Horder in 1906, and that the infection entered the body through a wound soiled with equine faeces.

(35) The Effect of X-rays on Antibody Formation.

J. P. Simonds and H. M. Jones have studied the effect of antibody formation produced by exposure by X-rays on rabbits (*Journ. Med. Research*, November, 1915). Samples of blood were collected for examination 24 hours before the injection of the antigen, and subsequently every second day during the course of the experiments. They found that there was a steady decline in the number of leucocytes in the peripheral blood, especially lymphocytes. The exposures had no effect on the red cells. Agglutinins were appreciably lowered by an exposure to X-rays of from 10 to 15 minutes' duration. Their experiments did not yield any clear indication of the effect on bacteriolysins. The opsonic content and the complement-fixing power was not materially altered by the rays. The same authors have in-

vestigated the effect of subcutaneous injections of 1 c.cm. of benzol in 2 c.cm. of olive oil per kilogram body weight. Marked individual differences were noted in the experiment animals. A depression in the production of hæmolysins, agglutinins and opsonins was noted. The reduction was least marked in the case of the opsonins.

(36) Complement Fixation with Bacterial Extracts Prepared with Digestive Ferments

J. O. Hirschfelder (*Journ. Amer. Med. Assoc.*, December 11, 1915) records a series of experiments carried out with the object of determining the value of Bordet's complement fixation when applied with extracts prepared with digestive ferments. He describes his method of standardizing bacterial suspensions and the process employed for digesting the bacteria in an alkaline solution of pancreatin. The gonococcus, pneumococcus, streptococcus, bacillus typhosus, tubercle bacillus, streptodiplococcus rheumaticus and the spirochaeta pallida were utilized in the series. The author states that the investigations have indicated that the substance extracted was not an autolysed product, but a real-end body. He claims from his results that these extracts make efficient antigens. A number of tables are appended, which bear out to a greater or less extent this contention.

(37) Renal Oosporosis.

A. Sartory, P. Lasseur and H. Brisaud (*C. R. Soc. Biol. Paris*, June, 1915) describe a case of affection of the kidney due to a mould of the genus, *Oospora*. Cases of illness, due to this mould, have been observed frequently among soldiers in the military hospital. The patient is an infantryman, aged 34, who became ill in September, 1914, in consequence of a blow on the right side from a mass of earth. He struggled against his illness until he had lost 15 kilos weight, when he was sent to hospital in December. In civil life he follows the occupation of a gardener, and dwells in the Maine and Loire district. His mother died at 40 years from phthisis. A brother was epileptic. Another brother and a sister are healthy. In early life the patient had been poorly fed. He had right suppurative otitis for twenty years from birth. In 1902, in Algiers, he had typhoid fever while on military service. He was mobilized in August, and withstood well the hard work of the campaign. To avoid thirst he was accustomed to put stones in his mouth. After being hit in the right loin he had a bruise and vague pains, but continued his duties. Gradually pain in the right side became persistent. Small hæmaturias were observed. Wasting set in, nocturnal sweatings were frequent. An attack of vomiting, with fever, necessitated his removal to hospital. The clinical condition suggested renal tuberculosis. He improved rapidly in hospital. Six weeks after admission he had however an acute attack of pain in the right kidney,

with frequent and painful micturition. The urine was bloody, and was loaded with pus. Examination of the urine showed the presence of mycelial threads, spirilla and bacilli, similar to those met with in Vincent's angina. Cultivation of the mould in hanging drops of broth containing maltose shows that the mould belongs to the genus, *Oospora*. The mould is pathogenic for guinea-pig and rabbits. The patient has been treated with iodine *per os*. He seems for the time to be better. The mould grows as isolated or branched threads mingled with chains of conidia. It is not decolorized by Gram's method, but is decolorized by dilute acids.

PÆDIATRICS.

(38) Proteid Need of Infants.

After three years' experience of feeding children with low protein milk mixtures, Hoobler (*Amer. Journ. of Dis. of Children*, September, 1915) considers that his method is a most satisfactory one, as it allows, without overfeeding, of giving larger quantities of carbohydrates and fats, and permits the use of top, whole, skimmed or butter milk formulas, according to the clinical indications for each individual infant. The author details his observations on the metabolic processes of an infant, aged 2 months, fed, during 16 days of observation, on a diet varying in protein, but with a constant fat and carbohydrate content. The following is a summary of his findings: (1) Protein, when fed in excess of need, causes an increase in the energy metabolism. (2) The increase is in proportion to the amount of protein oxidized, and not to the amount of protein added to the tissues of the body. (3) Protein, when fed in excess, does not reduce the amount of fat and carbohydrate metabolized, but the fat and carbohydrate need remains almost constant, and, unless the minimal need of fat and carbohydrate is supplied in the food, the organism will draw on its stored-up fat and glycogen to supply the difference between the amount fed and that which is metabolized. (4) When protein is fed greatly in excess of its need, it tends to produce a condition of stupor, which assumes serious proportions if this feeding is continued. The stupor gradually disappears as the protein is reduced in the diet. This condition is best considered as a protein food injury, and constitutes a clinical entity as definite in its symptomatology as that which arises from too prolonged use of a rich carbohydrate diet. (5) The protein need of the growing infant is supplied when 7% of its caloric need is furnished in protein calories. (6) A general rule, which will approximate the protein need, is to furnish $\frac{1}{4}$ ounce of whole, skimmed or top milk per pound weight of the child in each 24 hours, or metric, $\frac{1}{20}$ of the body weight in such milk. (7) To keep the protein calories in any formula, approximately 7% of the total, the following rule regarding the addi-

tion of cereal gruels or sugar, or both, may be followed. For each ounce of whole milk, add $\frac{1}{4}$ ounce of sugar or cereal; for each ounce of top, 16 ounces (7%) milk, add $\frac{1}{4}$ ounce sugar or cereal; for each ounce of top, 10 ounces (10%) milk, add $\frac{1}{4}$ ounce sugar or cereal. (8) It is clearly recognized that rules outlined for feeding for nutritional purposes only cannot be followed when one feeds a food for therapeutic as well as nutritional purposes; hence, the feeding of albumin or skimmed milk, i.e., a high protein food, is justified on the ground of its being a therapeutic measure, and should be discontinued when the therapeutic indication no longer exists.

(39) Birth Fractures of the Humerus.

During a period of three years, Lowesdell (*Arch. of Pediatrics*, September, 1915) noted a series of twenty-four fractures in twenty-one infants. Of these fractures, seventeen occurred during version with breech extraction, four during simple breech extraction, and three in vertex presentations, in which difficulty was experienced, owing to narrow pelvic outlet or large child. The line of fracture in all the cases but one (oblique) was practically transverse, and situated at or near the centre of the bone, just below the deltoid. The deformity present in all cases, extreme in a few, was usually an external angulation, or there was a lateral displacement, the fragments lying parallel, but more or less separated. Over-riding and antero-posterior displacement were not noted. With each fracture there was well-marked wrist drop, due, not to callus formation, pressing on the nerve, but to some injury to the musculo-spiral nerve, at the time of the fracture. This paralysis gradually disappeared and had quite vanished before six weeks. Treatment varied from time to time. At first, splints were used, but it was found more satisfactory to bind the arm to the lateral chest wall, with the forearm flexed and the hand brought towards the opposite shoulder. The axilla was protected with gauze or cotton. Strong union occurred usually in three weeks. No matter how carefully treated, considerable angular deformity appeared in a number of these cases, though, up to the end of the second week, forcible correction was possible and worthy of trial. It was found that, even with marked deformity at first, after two years all, or almost all, the deformity had disappeared. The author therefore advises that, while carefully treating these fractures, no operation or forcible straightening should be attempted, except during the second week. A fractured humerus was rarely found to accompany fracture of the clavicle, though numerous examples of the latter were noted, usually after difficult breech extractions.

(40) Congenital Depressions of the Skull.

Goodman (*Arch. of Pediatrics*, August, 1915) describes the condition of congenital depressions of the skull, be-

cause, while of slight clinical importance, it may be of interest medicolegally, because it usually gives the parents great concern, and because the nurse or physician is often accused of carelessness or excessive violence. In the author's three reported cases, labour was normal, of short duration and without instrumentation. The condition may be due to a softened condition of the cranial bones, or to a deformity of the pelvis, usually affecting the sacral promontory. The depressions occur usually on the parietal bones, and occasionally on the temporal and occipital bones. They are of various shapes, commonly spoon-shaped or angular. Rarely are there any accompanying symptoms, but severe cranial hæmorrhage and death may occur. The depressions gradually fill in, and the head becomes normal about the third or fourth year. As regards treatment, operation, with removal of the depression, may be necessary, but the author considers that, in the majority of cases, interference is unnecessary.

(41) Syphilis and Sydenham's Chorea.

Numerous reports have been published of cases of chorea treated successfully by means of salvarsan, etc., and, perhaps, for this reason, syphilis is accused in some quarters of being an important ætiological factor in this disease. Many of the patients, however, have been the subjects of congenital syphilis, or have shown certain cranial anomalies, retarded development or stigmata of degeneration. Koplik (*Arch. of Pediatrics*, August, 1915) gives the results of anti-syphilitic treatment in eleven successive cases of chorea, in children from six to thirteen years. Five of these had endocarditis on admission; three gave a definite history of previous rheumatism. Of 10 Wassermann reactions, 8 were negative, and 2 were not positive. In no case could syphilis be detected in the child or in the parents. Nine cases were treated with neo-salvarsan by an expert, and in 7 no striking results could be noted. Even after the second and third injections the chorea continued to run its accustomed course. The average duration of the disease after the last injection of the drug was 36 days in the 7 cases. In another case a nephritis resulted, and the patient was ill for some weeks after with chorea, though recovery ultimately ensued. The author considers that a certain percentage of children with chorea will give a Wassermann reaction or show other signs of syphilis, or that a syphilitic child may contract chorea, the syphilis being accidental and not causal. Syphilitic children are, however, not more prone to contract chorea than other children. If salvarsan cures chorea, it does not follow that syphilis is the causal agent of the disease. The author's results with the drug were not such as to encourage a continuance of its use, nor such as to warrant any assumption of a possible syphilitic or parasymphilitic influence as a causative factor in chorea.

Public Health.

THE HEALTH OF VICTORIA.

The following notifications have been received by the Department of Public Health, Victoria, during the week ending January 16, 1916:—

	Metro- politan.		Rest of State.		Totals.	
	Cs.	Dths.	Cs.	Dths.	Cs.	Dths.
Diphtheria	27	2	21	0	48	2
Scarlatina	13	1	7	1	20	2
Enteric Fever.. .. .	4	0	25	1	29	1
Pulmonary Tuberculosis	25	8	19	8	44	16

The following is the number of cases of epidemic cerebro-spinal meningitis notified to the Board during the week ending January 16, 1915:—

	Metropolitan Area.		Rural Districts.		Totals.	
	Cases.		Cases.		Cases.	
Military	—		—		1	
Civil	4		1		5	

INFECTIVE DISEASES IN QUEENSLAND.

The following notifications have been received by the Department of Public Health, Queensland, during the week ending January 15, 1916:—

Disease.	No. of Cases.
Diphtheria	18
Scarlet Fever.. .. .	2
Enteric Fever.. .. .	82
Pulmonary Tuberculosis	8
Varicella	3
Cerebro-spinal Meningitis..	1
Erysipelas	3
Total	117

We are informed that in the list of notifications of cases of infectious disease received in the week ending January 8, 1916, published last week, the number of diphtheria cases should have been 24, instead of 18.

INFECTIVE DISEASES IN WESTERN AUSTRALIA.

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending January 8, 1916:—

District.	Enteric Fever.		Diph- theria.		Scarla- rina.		Pul- monary Tubercu- losis.		Ery- sipelas.		Septi- cæmia.		Pur- ulent- Oph- thal- mia.	
	Cases.		Cases.		Cases.		Cases.		Cases.		Cases.		Cases.	
Fremantle	1		2		—		—		—		—		—	
Fremantle North	1		—		—		—		—		—		—	
Cottesloe	1		—		—		—		—		—		—	
Claremont	1		—		—		1		1		—		—	
Subiaco	—		—		1		1		—		—		—	
Perth	3		7		—		1		—		—		—	
Maylands	2		—		—		—		—		—		—	
Bayswater	—		—		—		1		—		—		—	
Kalgoorlie	—		—		—		—		—		1		—	
Boulder	—		1		—		—		—		—		—	
Bruce Rock	1		—		—		—		—		—		—	
Osborne Park	—		1		—		—		—		—		—	
Wagin	—		—		1		—		—		—		—	
Kurrawang	1		—		—		—		—		—		—	
Quindanning	—		1		—		—		—		—		—	
Yarloop	1		—		—		—		—		—		—	
Totals	12		12		2		4		1		1		1	

SMALL-POX IN NEW SOUTH WALES.

The following cases of small-pox have been reported to the Department of Public Health, New South Wales, during the week ending January 16, 1916:—

Country.	No. of Cases
Newcastle	5
Taree (infected at Newcastle) ..	2
Wauchope (infected at Newcastle)..	1
S.S. Yulgilbar	1
Total	9

During the week ending January 24, 1916, four fresh cases of small-pox have been reported. All four cases were infected in the Newcastle district.

INFECTIVE DISEASES IN AUCKLAND.

The following notifications have been received by the District Health Officer, Auckland, New Zealand, for the month of December 31, 1915:—

	City.		Suburbs.		Country Districts.		Total Cases.
	Cases.		Cases.		Cases.		
Scarlatina	25		37		6		68
Diphtheria	6		13		14		33
Enteric Fever	2		1		31		34
Pulmonary Tuberculosis	9		13		8		30
Blood Poisoning	1		1		1		3
Polio-myelitis	—		1		—		1
Cerebro-Spinal Menin- gitis	1		—		1		2

THE MALARIA PROBLEM.

A conference was held in Sydney on January 21, 1916, for the purpose of considering the best means of dealing with cases of malaria affecting soldiers arriving from New Guinea and other malarial regions in the Pacific. Surgeon-General Fetherston, the Director-General of Medical Services, Colonel Stokes, Colonel Cuscaden, Major Maguire, and Major McIntosh, Dr. Cumpston, the Director of Quarantine, Professor D. Welsh, Professor of Pathology at the University of Sydney, Dr. Priestley, of the Australian Institute of Tropical Medicine, and Dr. J. Burton Cleland, Principal Microbiologist of the Department of Public Health of New South Wales, were present.

The conference examined the evidence of the distribution of anopheline mosquitoes, and came to the conclusion that these mosquitoes are not sufficiently prevalent, as far as is known, in the greater part of the Commonwealth to render the risk of spread from returned soldiers a serious one. The concentration of anophelines, however, is high in Cairns, Port Douglas, and Overland Corner (South Australia), and in these districts malaria might spread in epidemic form. It was pointed out that Overland Corner is the only district in South Australia in which anopheles are known to be present in considerable numbers. The members arrived at the opinion that the epidemic spread of malaria is improbable in any part of Australia, save at Overland Corner, and in those areas where the disease is already known to exist. It was decided that further investigations should be undertaken into the concentration of anopheline mosquitoes in the irrigation districts on the Murray and Darling Rivers. A recommendation to this effect was agreed upon, and it was further urged that, until this investigation had been carried out, no soldier should be sent to tropical regions from these districts. Men returned infected with malaria should, as far as is possible, be prevented from returning to these districts.

The Conference drew up the following recommendations in the interest both of the Commonwealth generally and of the soldiers themselves:—

- (1) That it is necessary for all soldiers suffering from malaria, when returning from New Guinea to Australia, to be disembarked at Townsville for observation and treatment.
- (2) That all invalided and discharged soldiers now in Australia, who have been infected, be concentrated in one place, in order that they may be subjected to a course of treatment.
- (3) That the pay of the men already discharged on account of malaria be continued for three months, while the course of treatment is being carried out, and that the assistance of the Pensions authorities be sought in this connexion.
- (4) That the treatment be on the lines suggested by Professor Welsh and Dr. Priestley, and that this course of treatment be officially ordered.

THE HEALTH OF ADELAIDE AND PORT ADELAIDE.

The Annual Report of the Medical Officer of Health of the City of Adelaide for the year ending September 30, 1915,

is a short document, occupying about five foolscap pages, with appendices, but containing, nevertheless, much interesting and important information.

The population of the city was estimated at 43,448 on January 1, 1915. The increase since January 1, 1914, was only 305. There were 1,037 births registered within the city bounds, and 1,189 deaths. The latter number must, however, be discounted by 452, inasmuch as this was the number of persons dying within the city whose usual place of residence was without it. Presumably there was a gain of five as a result of the movement of the population, to make up the total increase of population to 305.

The birth-rate per 1,000 of population worked out at 23.87. This rate is higher than that of the year 1906-07 and 1907-08, and lower than that of each subsequent year. The highest rate was in 1912-13, *viz.*, 31.03. Dr. Borthwick points out that the rates are based on the data supplied by the Registrar-General's monthly returns, but do not afford a correct view of the position. The death-rate was 16.96 according to the official returns, but after due correction for the deaths which occurred in institutions other than those recognized by the Registrar-General, it appears that the number of deaths of persons usually resident within the City was 594, and the mortality rate was consequently 13.67. In the year 1906-07, it was 12.43. It exceeded 15 in the following year and in 1911-12; it exceeded 14 in 1910-11 and 1912-13, and was less than 13 in 1906-07 and 1908-09. The number of infants under one year of age whose death was registered was 151. After the correction had been made this number was reduced to 95, which is equivalent to an infantile mortality of 91. The infantile mortality has decreased during the past ten years, but there has been a slight increase since 1912-13.

Dr. Borthwick reproduces tables giving the quarterly distribution of the causes of death and the annual figures, as published in the Registrar-General's returns. He appends in the form of footnotes the necessary corrections for persons not usually resident in the city.

Diseases of the circulatory system caused 80 deaths, which is 6.7 above the average of the past ten years. The next highest figure is that of deaths due to diarrhoea and enteritis. The number given is 76, from which 48 should be deducted, and to which 6 should be added. There were 58 deaths from malignant disease, which is considerably higher than the average for the past eight years. Death from respiratory diseases numbered 62. One death of a person usually resident in the city occurred from these causes outside the city confines. Pulmonary tuberculosis caused 43 deaths, and other forms of tubercular disease 21. The former is considerably lower than the average for the preceding ten years, while the latter is slightly higher. There were 11 deaths from diphtheria, including 9 of persons usually resident outside the city, 4 from measles, 2 from enteric fever and 2 from dysentery. One of the enteric fever patients was resident outside the city.

In dealing with the notification of disease, the Medical Officer of Health records a large number of measles cases, particularly during the months of July, August and September. There were 594 cases, 26 of which originated in hospital. The large majority, *viz.*, 540, of the patients were treated in their own homes. Diphtheria has not been very prevalent within the city, only 56 cases having been reported. During the past seven years the numbers were 104, 332, 194, 113, 165, 116 and 56. Seven of the patients contracted the infection in hospital. Pulmonary tuberculosis was reported 61 times. This figure is approximately the average for the past ten years. Twenty-nine of the patients were removed to hospital. Scarlet fever has been very slightly prevalent, only 23 cases having been reported. In 1905-06 there were 167 cases, in 1911-12 there were 83 cases, and in 1912-13 there were 86. Enteric fever occurred 14 times, which is below the average for the past ten years. Erysipelas was notified 12 times, and puerperal fever three times. Cerebro-spinal meningitis has been notifiable since July, and up to the end of September, 13 cases were reported, six of which were military cases.

Some anxiety has been felt in regard to the water supply of the city. It was realised that a water famine might result in consequence of droughts, unless some means were adopted to replenish the reservoirs. Special measures were adopted,

with a temporarily satisfactory result. Samples of water were subjected from time to time to chemical analysis. An average sample was found to contain 0.0143 parts of nitrates, calculated as ammonia per 100,000, 61.2 total solids, 18.8 chlorine, 0.025 albuminoid ammonia. The same sample consumed 0.0571 volumes of oxygen per 100,000 volumes in a quarter of an hour and 0.114 in a half an hour. The bacteriological examination yielded very variable results. In no case was the number of bacteria per c.c.m. high, the largest number being 2,650. On the other hand, the majority of samples contained a bacillus coli in 100 c.c.m. Twelve out of 29 samples contained the colon bacillus in 50 c.c.m., 7 samples yielded it in 10 c.c.m., and in two samples it was grown from 1 c.c.m. It appears that bacillus coli was absent during the summer months, before the autumn rains, was present in 14.2% of the samples (when 1 c.c.m. was dealt with) during the autumn and early winter rains, and in 10% during the winter and early spring rains.

The general sanitation of the city has been subjected to systematic inspection. During the year notices were served to remove 3,381 insanitary conditions. Four houses were condemned as unfit for human habitation, and ordered to be pulled down. The work of the Inspector's Department is set out in a special table.

The report of the Medical Officer of Health for Port Adelaide has been issued, together with the Mayor's report. It appears that the population on January 1, 1915, was 25,485, which is 392 more than that of 1914. There were 846 births registered during the year. The birth-rate is given at 33.19 per 1,000 of population. There were 269 deaths recorded during the year, but, in addition, there were 67 deaths which took place outside Port Adelaide of persons usually resident in that city. The corrected death rate works out at 13.18. The infantile mortality was 82 per 1,000 births. In 1914 this rate was 76 for the whole of the State.

The number of cases of measles notified during the year was 298, and, in addition, 12 cases were imported from elsewhere. There were 47 cases of pulmonary tuberculosis notified, 13 of enteric fever, 32 of diphtheria, 28 of scarlet fever, 9 of erysipelas, 6 of puerperal sepsis, 5 of pertussis, 4 of cerebro-spinal meningitis, 2 each of variola, varicella, malaria and tubercular meningitis, and one each of cholera and rubella.

Dr. Bollen reports that construction work in connexion with the deep drainage has been in steady progress, but that the water supply continues to prevent house-to-house connections being made. Much difficulty has been experienced in obtaining an adequate quantity of water during the summer. The streets were watered with salt water. A large number of bores were put down, with very unsatisfactory results. Samples of water were subjected to analysis, and in each case revealed faecal contamination. In Semaphore and Largs the colon bacillus was recognized in one c.c.m. of water. Dr. Bollen protests against using contaminated water for street watering, but states that, regardless of his disapproval, no alteration has been made.

The work of the Chief Inspector has been carried out with energy.

The City Nurse made 1,336 visits, caused 146 houses to be disinfected, and performed a number of other useful functions.

Vital Statistics.

VITAL STATISTICS OF SYDNEY AND NEWCASTLE.

The usual monthly returns of the Government Statistician of New South Wales, dealing with the vital statistics of the Metropolis of Sydney and Newcastle, have appeared in the *New South Wales Government Gazette*, No. 10, of January 14, 1916.

During the month of December there were 1,631 births registered in the metropolis, as compared with 1,745, which was the average for December for the preceding five years. The rate expressed as an annual rate per 1,000 of population is 26.04, and is 6% below the average for the preceding five Decembers. One hundred and fourteen illegitimate

children were born during the month. The rate is equivalent to an annual illegitimate birth-rate of 1.80 per 1,000 of population, as compared with 2.16, which was the corresponding figure for the previous five years. Of the 1,745 births, 274, or 17% of the total took place in hospitals or other public institutions.

The deaths for the month numbered 736, 424 of males and 312 of females. The mortality, which is 11.76 per 1,000 of population, is slightly above the average for the preceding five years. The number of deaths of persons under five years of age was above the average, and those of persons of five years and over below it. The infantile mortality rate is 114 per 1,000 births, and is the highest for December since 1911.

Of the causes of death, diarrhoea and enteritis contributed most largely with 140 deaths. There were 37 deaths from tuberculosis, of which 24 affected the lung, and 5 the meninges. There were 37 deaths from pneumonia, 13 of which are classified as broncho-pneumonia; there were 7 deaths from scarlatina, 7 from acute endocarditis, 4 each from enteric fever, pertussis, morbilli, bronchitis, erysipelas, simple meningitis, and chronic bronchitis, 3 each from acute bronchitis, pericarditis and syphilis, 2 from malaria, and one each from influenza, cholera nostras, dysentery, tetanus, mycosis, beri-beri. There were 54 deaths entered due to cancer, 16 of which are stated to have been situated in the stomach and liver, 9 in the peritoneum and intestines, 5 in the female genital organs, 5 in the breast, and 4 in the mouth. The total number of deaths due to affections of the cardio-vascular system was 92, including 20 of cerebral hæmorrhage and 49 of valvular disease of the heart. There were 39 deaths from Bright's disease, and 4 from acute nephritis. Under the rubric "puerperal conditions" 4 deaths are entered as a result of accidents of pregnancy, 2 of other accidents of child-birth, 2 of puerperal septicæmia, and 1 of puerperal albuminuria.

From the return for the fourth quarter, it appears that 2,572 males and 2,283 females were born. This is equivalent to an annual rate of 25.8 per 1,000 of population. The birth-rate was 11.5% below that for the December quarter of the preceding five years. Of the 2,855 infants born 334 were illegitimate. This is equivalent to an illegitimate birth-rate of 1.76 per 1,000 of population. The highest illegitimate rate during the preceding 10 years for the fourth quarter was 2.96 in 1907. In 1906 the rate was 2.5. Since 1912 the rate has diminished markedly. The average for the December quarter during the past 10 years was 2.4.

The number of deaths recorded in the metropolis during the quarter was 2,212, being 1,221 of males and 991 of females. The death-rate is therefore equal to an annual rate of 11.76. In 1912 the death-rate was 3.28. In all other years since 1906 it has been lower than the present. The average for the ten years works out at 10.96. Five hundred and thirty-nine deaths of infants under one year of age took place within the quarter. The infantile death-rate was, therefore, 111 per 1,000 births, which is considerably higher than the average for the past 10 years. It was the same in 1907, while in the fourth quarter of 1914 it was as low as 64 per 1,000.

The principal causes of death are given in a separate table. As is usual during the summer months, gastro-intestinal affections account for the largest number of deaths. There were 389 due to diarrhoea and enteritis, 317 of which affected children under 2 years of age. The next most fruitful cause of death is the class of affection of the cardio-vascular system. The number of deaths in this category was 286, including 54 from cerebral hæmorrhage, 167 from valvular heart disease, and 17 from acute endocarditis. The infective diseases, as is always the case, contributed a large number of deaths. There were no less than 471 deaths in this group, including the xymotic diseases, the various epidemic diseases, venereal disease, bronchitis and pneumonia, while if diarrhoea and enteritis be added, the number is still further increased to 860, which is equivalent to nearly 40% of all the deaths. Tuberculosis caused 109 deaths, lobar pneumonia 90, broncho-pneumonia 45, morbilli 34, chronic bronchitis 21, diphtheria 21, scarlatina 20, cerebro-spinal meningitis 18, enteric fever 17, pertussis and acute bronchitis 13 each, syphilis and meningitis 11 each, dysentery 5, and influenza 4. Cancer killed 170 persons.

The report of the Newcastle district is also divided into a monthly report for December, and a quarterly report for the fourth quarter of the year. The births registered in December numbered 189, which is equivalent to an annual birth-rate of 38.64 per 1,000 of population. During the quarter 522 births were registered, which is equivalent to an annual rate of 35.6. There were 7 illegitimate children born during the month, and 25 during the quarter.

The number of deaths during the month was 69, and during the quarter the number was 241. The equivalent death-rate, expressed as annual rates are 14.16 and 16.44 per 1,000 of population. The death-rate was highest in November and lowest in July during the year 1915. The mean for December during the previous ten years was 13.9. Of the 69 deaths, 20 were of infants under 1 year of age. The infantile mortality for December was 106. In 1909 it was 223, and in every other year since 1906, save 1912 and 1914, it was higher than 100.

The causes of death during the month included 16 instances of diarrhoea, 2 of enteric fever, 3 of morbilli, 1 of dysentery, 3 of tuberculosis, 3 of broncho-pneumonia, 2 of pneumonia, and 1 of acute bronchitis. There were 4 deaths from cerebral hæmorrhage, and 3 from cardiac affections.

The causes of death registered during the quarter are set out in a separate table. Diarrhoea and enteritis accounted for 56 deaths, pneumonia for 15, morbilli for 6, tuberculosis for 10, enteric fever for 2, diphtheria for 3, dysentery and tetanus for one each, acute bronchitis for 2, chronic bronchitis for 3, and broncho-pneumonia for 4. Diseases of the cardio-vascular system caused 23 deaths; cancer caused 14, and Bright's disease. One death was due to an illegal operation.

Correspondence.

WHITE AUSTRALIA POLICY.

Sir,—“M.B. (Melb.)’s” opposition to the above policy is entirely based upon his contention that white men have not sufficient pigment in their skins to withstand the sun’s rays in the north of Australia.

Coloured men, according to “M.B. (Melb.)” have developed extra pigment in their skins for this purpose, hence their colour, in contra-distinction to white men, and their ability to live in a hot climate. The following is taken from C. Darwin’s “The Descent of Man,” “It was formerly thought that the colour of the skin and the character of the hair were determined by light or heat; and although it can hardly be denied that some effect is thus produced, almost all observers now agree that the effect has been very small even after exposure during many ages.” Again, “And as the newly-born infants of the various races of man do not differ nearly as much in colour as do the adults, although their bodies are as completely destitute of hair, we have some slight evidence that the tints of the different races were acquired at a period subsequent to the removal of the hair, which must have occurred at a very early period in the history of man.” Again, “Hence we may infer that the races of men were differentiated as far as sexual selection is concerned in chief part at a very remote epoch; and this conclusion throws light on the remarkable fact that at the most ancient period, of which we have as yet any record, the races of man had already come to differ nearly or quite as much as they do at the present day.” Professor Darwin ends the chapter by saying: “For my part, I conclude that of all the causes which have led to the differences in external appearance between the races of man, and to a certain extent between man and the lower animals, sexual selection has been the most efficient.”

Darwin evidently did not believe that man’s colour was in any way the result of the sun, but the result of sexual selection and inheritance.

The facts mentioned by Jas. F. Merrillees in his letter of April 10, 1915, are also entirely opposed to “M.B. (Melb.)’s” contention.

Sunshine or snow, it would be all the same where State socialism attempts to develop a new country.

Adopt Canada's system whereby personal initiative, enterprise and ambition are not strangled by suicidal State socialism, and thus build up as far as possible a White Australia.

Yours, etc.,

N. PERN.

Port Fairy, Victoria,
January 20, 1916.

Sir,—Before considering the question of race evolution, there are several impediments to be dealt with. One is the Stewart lecture by Dr. Anton Breinl, "On the Influences of Climate . . . on the White Race Living in the Tropics" (*The Medical Journal of Australia*, June 26, 1915). This lecture is interesting evidence of the limitations of the academic mind to undertake scientific research: profound in knowledge, but wanting in ideas.

As our own academic authorities have allowed the lecture to pass without comment, and as it is also probable that Dr. Breinl is responsible for the confidence with which Dr. Gilruth expressed his latest scientific opinions (Report on Territory, 1916), it is time its fallacies were exposed.

To hide his incapacity, Dr. Breinl begins by describing his subject as "extremely complex," and then asserts that "the deleterious and debilitating effects of a tropical climate on white men is due to excess of sunlight, humidity of atmosphere and the equable temperature." Being unable to explain why, he excuses himself by stating, "it is, however, extremely difficult to estimate the influences of these factors, as there always enters an element of uncertainty, owing to the absence of absolute means of measurement and the variability of hygienic surroundings."

Dr. Breinl then proceeds to discuss—

1. The Effect of Sunlight.—Having no ideas of his own, he discovers that "Paul Freer was the first to make the comparative measurements of violet and ultra-violet rays, to which most of the effect of tropical sunlight is usually attributed." What good purpose such an investigation served is not made known; but why disregard the effect of the red and infra-red rays? Let Dr. Breinl hold up his hand before the sun, if not too deeply pigmented, he will find, with the aid of a pocket spectroscope, that only the red rays are to be seen passing through bone as readily as through the soft tissues. What resistance organic membranes offer to the infra-red rays of sunlight has not been determined.

2. The Influence of High Temperatures.—The experiments enumerated suggest no useful purpose, but here Dr. Breinl attempts an original observation: "The higher the temperature of the surroundings the less heat will be lost by radiation." What evidence has he that the human body loses heat by radiation, i.e., of infra-red energy?

3. The Comparative Study of Skin Temperatures.—Dr. Breinl records that Aron "finds that, on exposure to the sun, the skin of the brown man absorbs more heat than does the white skin in the same length of time."

Dr. Breinl observes: "As brown skin absorbs a greater quantity of rays than white, the point where sweat secretions begin is reached earlier than in a white skin, and as soon as this point is reached the skin is cooled by water evaporation. The regulating apparatus of the brown man is thus more sensitive, and works more promptly and successfully than that of the white under similar conditions."

Dr. Breinl records that Aron further points out that at a time when the white man is perspiring profusely over his entire body, and the sweat is dropping from his face and forehead, the brown man shows only a fine, velvety-like layer of very small drops on his skin."

Dr. Breinl observes: "It is thus not the sweat which we see, but the sweat which we do not see, which exerts the cooling influence. In other words, the water evaporated, not the water secreted is of value."

Certainly Aron's results are "extremely significant," but Dr. Breinl's observations upon them are not remarkable for their intelligence.

The facts are these: The pigment of a coloured man's skin, according to the density of the deposit, will arrest the sun's rays, transmitted through the superficial epithelium, converting these rays into actual heat, which is imparted to the moisture contained in the pigmented cell, when

it spreads by diffusion or conduction to the nerve terminals encircling the cells. Reflex action is set up, causing the dilatation of the capillaries of the skin, which flushes the sweat glands and the superficial tissues, and so disposing of the heat by transpiration and evaporation. In the white man, there being practically little or no pigment in the cells of the *rete*, the transmitted rays come in direct contact with the blood in the capillaries of the skin, where they are mostly transformed into heat by the hæmoglobin of the red blood corpuscles, which allows the passage of the red rays into the deeper tissues. The heat thus absorbed is carried by the blood into the general circulation, when the white man disposes of it "by perspiring profusely over his entire body, and sweat dropping from his face and forehead." Obviously, the advantage is with the black and not with the white man. The pigment in the black man's skin protects him to the limit of its physiological capacity, while the white man's skin as readily absorbs the sun's rays, not merely to his discomfort but too often to his peril. That it is thus not the sweat which we see, but the sweat which we do not see which exerts the cooling influence is nonsense.

It is useless to pursue Dr. Breinl's enquiries "into the influence of the increased temperature on the sum of the chemical changes of the human organism, called the metabolism." He discovers the "Arneth index" and reaches the conclusion that "years of detailed and minute research, carried on in the populated coastal districts of tropical Australia, where a second and a third generation is being reared at present, will clear up the question of the climatic influence on the white man in the tropics, and the result of this work will indicate whether the great experiment of populating tropical Australia with a white working community can be accomplished."

Need anyone wonder that the representatives of government have turned hopelessly from the Halls of Learning and sought, in their helplessness, aid elsewhere. But why the pastoralists? Does it suggest the wise men from the east? Why not let legislators first seek an open discussion through the medium of the press. It will at least test the truth of their most favoured maxim, that "in the multitude of counsellors there is safety," and possibly wisdom.

Yours, etc.,

M.B. (Melb.).

Personal.

Dr. James Booth has succeeded to the practice of Dr. V. J. E. Zicky-Woinarski, of Victoria Street North, Melbourne. Before leaving Broken Hill he was presented with an inscribed inkstand by the medical superintendent, Dr. Birks, on behalf of the nurses of the Broken Hill and District Hospital, of which he was an Honorary Surgeon. At a special meeting of the City Council he was presented with a framed address, signed by the Mayor, aldermen and officials. He had been a member of the City Council for nine years, and recently the only non-labour representative. The Ambulance Corps of Broken Hill gave him a send-off.

It is with great regret that we record the death of Mrs. Neale, the wife of Dr. Alfred Neale, of Manly, New South Wales. Mrs. Neale was taken ill with parotitis a short time ago. She unfortunately developed a secondary infection of tetanus, to which she succumbed on January 19, 1916. The sympathy of a large circle of friends has been extended to Dr. Neale.

The announcement has been made of the nomination of Professor W. Harrison Moore for the position on the Council of the University of Melbourne vacated by the resignation of Professor Masson.

Proceedings of the Australasian Medical Boards.

NEW SOUTH WALES.

The following have been registered as duly qualified medical practitioners under the Medical Practitioners Act, 1912 and 1915:—

Schumacher, Carl Herman, M.B., Bac. Surg., 1900, Univ. New Zealand.
 Robinson, Clive Frederic, M.B., 1915, Univ. Sydney.
 Brown, Francis Frederick, M.B., Bac. Surg., 1913, Univ. Aberdeen.
 O'Shaughnessy, William Thomas Bernard, M.B., Bac. Surg., 1915, Univ. Melb.
 Douglas, John Campbell, M.B., Univ. Glasgow, 1871; Lic. R. Coll., Surg. Edin., 1871.
 O'Reilly, Bertram Charles Noble, Lic. R. Coll. Phys. Lon., 1909; Mem. R. Coll. Surg. Eng., 1909.

Books Received.

HANDBOOK OF COLLOID-CHEMISTRY: THE RECOGNITION OF COLLOIDS, THE THEORY OF COLLOIDS, AND THEIR GENERAL PHYSICO-CHEMICAL PROPERTIES, by Dr. Wolfgang Ostwald; First English Edition Translated by Dr. Martin H. Fischer, with the assistance of Ralph E. Oesper, Ph.D., and Louis Berman, M.B., 1915. Philadelphia: P. Blakiston's Son & Co.; pp. 278, with illustrations; Demi 8vo. Price, 12s. 6d.

Medical Appointments.

Dr. P. H. Nutting has been appointed Resident Medical Officer, Fremantle Public Hospital, Western Australia.

Dr. Donald Cameron has been appointed District Medical Officer and Public Vaccinator, Cue, Western Australia.

Dr. R. C. Merryweather has been appointed a Member of the Midwives' Registration Board, Western Australia, during the period of Dr. Atkinson's appointment as Acting Commissioner of Public Health.

Dr. E. A. Officer has been appointed a Member of the Midwives' Registration Board, during the absence of Dr. A. T. White on military duty.

Dr. A. Juett has been appointed District Medical Officer and Public Vaccinator, Cue, Western Australia.

The following have been appointed Members of the Board of Management of the Perth Public Hospital, Western Australia: The Mayor of Perth, The Acting Principal Medical Officer, Albany Bell, Mrs. J. Cowan, J. T. Davies, Mrs. J. B. Holman, Mrs. H. W. Rischbieth, B. J. Stubbs, M.L.A., G. Taylor, M.L.A., and T. C. Villiers.

Miss Caroline Maud Burne, Nurse Inspector, has been appointed Matron to the Lady Edeline Hospital for Babies, New South Wales.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xlii.

Proserpine District Hospital, North Queensland, Medical Officer.

Oberon District, Medical Officer.

Medical Appointments.

IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
QUEENSLAND.	
(Hon. Sec., B.M.A. Building, Adelaide Street, Brisbane.)	Brisbane United F.S. Institute. Croydon Hospital.

Branch. WESTERN AUSTRALIA.

(Hon. Sec., 230 St. George's Terrace, Perth.)

APPOINTMENTS.

Swan District Medical Officer.
 All Contract Practice Appointments in Western Australia.

Department of Public Instruction—New Appointments as Medical Officer, Ophthalmic Surgeon, Ear, Nose and Throat Surgeon, Physician.
 Australian Natives' Association.
 Balmain United F.S. Dispensary.
 Canterbury United F.S. Dispensary.
 Goulburn F.S. Association.
 Leichhardt and Petersham Dispensary.
 M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney.

Marrickville United F.S. Dispensary.
 N.S.W. Ambulance Association and Transport Brigade.

North Sydney United F.S.
 People's Prudential Benefit Society.
 Phoenix Mutual Provident Society.
 F.S. Lodges at Casino.
 F.S. Lodges at Lithgow.
 F.S. Lodges at Mudgee (except A.H.C.G., M.U.I.O.O.F. & U.A.O.D.).
 F.S. Lodges at Orange.
 F.S. Lodges at Parramatta, Penrith and Auburn.
 F.S. Lodges at Wellington.
 Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.

NEW SOUTH WALES.

(Hon. Sec., 30-34 Elizabeth Street, Sydney.)

SOUTH AUSTRALIA.

(Hon. Sec., 3 North Terrace, Adelaide.)

The F.S. Medical Assoc., Incorp., Adelaide.

NEW ZEALAND: WELLINGTON DIVISION.

Hon. Sec., Wellington.)

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Diary for the Month.

- Feb. 2.—Vic. Branch, B.M.A., General.
- Feb. 4.—Queensland Branch, B.M.A., General.
- Feb. 4.—N.S.W. Branch, B.M.A., Extraordinary General.
- Feb. 10.—Vic. Branch, B.M.A., Council.
- Feb. 11.—S. Aust. Branch, B.M.A., Council.
- Feb. 15.—N.S.W. Branch, Executive and Finance Committee, Ethics Committee.
- Feb. 16.—W. Aust. Branch, B.M.A., General.
- Feb. 23.—Vict. Branch, B.M.A., Council.
- Feb. 24.—S. Aust. Branch, B.M.A., General.
- Feb. 29.—N.S.W. Branch, Medical Politics Committee, Organization and Science Committee.

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